

SELF-DISCLOSURE WITH DOGS

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Scales

The Emotional Self-Disclosure Scale (Snell *et al*, 1988)

The Flanagan Quality of Life Scale (Flanagan, 1978)

Abbreviations

AEW – Aislinn Evans-Wilday (first author)

DM – Daniel Mills (primary supervisor)

DFA – Discriminant Function Analysis

ESD – Emotional Self-Disclosure Scale

PCA – Principal Component Analysis

QoL – Quality of Life

SDwDS – Self-Disclosure with Dogs Scale

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ABSTRACT

There exists an abundance of literature on the health benefits of dog-ownership and the health benefits of self-disclosure however, there has been no research into the potential health benefits of self-disclosure to dogs. This thesis addresses that gap in the literature.

Among the literature on the health benefits of dog-ownership there is often a focus on the benefits to people with clinical conditions or living in care facilities – much less investigated are the benefits to ‘normally-functioning’ owners. Chapter 1 investigates the literature on the health benefits of dog-ownership to ‘normally-functioning’ owners in the form of a systematic literature review. This review highlights the need for future research to fully define the term ‘owner’ when conducting research into the owner-dog relationship and to specify the *type* and *style* of relationship being examined, since not all owner-dog relationships are equal.

Chapter 2 is a two-part study. Part 1 assesses the validity of adapting an established self-disclosure scale for use with dogs. Part 2 asks: are there any topics that dog-owners would rather confide in their dog than their human partner? The results indicate that heterosexual female dog-owners are significantly more willing to confide in their dog about feelings of Depression, Jealousy, Apathy and Calmness and are significantly more willing to confide in their partner about feelings of Anger and Fear. Male dog-owners showed no significant differences in their preferred disclosure recipient.

Chapter 3 builds on the research started in Chapter 2 but is a separate study with a new sample of participants. The aim of this study was to: (1) determine the differences between dog-owners and non-dog-owners’ disclosure patterns to their partner, confidante and dog, (2) determine whether dog-owners and non-dog-owners differ in their quality of life using an established quality of life scale and (3) determine whether quality of life can be predicted by disclosure patterns. The results indicate that dogs do not play the same role as confidantes, since dog-owners and non-dog-owners do not differ significantly in their disclosure patterns to their partner and confidante however, there are topics that dog-owners are significantly more willing to talk to their dogs about versus their partners and confidantes. Quality of life scores of dog-owners were higher than non-dog-owners, although self-disclosure to dogs was not predictive of these higher scores.

Chapter 4 discusses the potential benefits of self-disclosure to dogs and discusses reasons behind female dog-owners’ willingness to confide in their dogs, with evidence from qualitative interviews with female dog-owners carried out as part of this research.

CHAPTER ONE

What (If Anything) Is It About Dog-Ownership That Gives Rise To Any Benefits For ‘Normal Owners’? - A Systematic Review

INTRODUCTION

There are increasing claims of support for the notion that pet-ownership is beneficial to human health (Allen, 2003, Herzog, 2011, Smith, 2012); indeed the term ‘pet effect’ has been coined to describe *‘the idea that living with an animal can improve human health, psychological well-being, and longevity’* (Herzog, 2011). Of the benefits associated with the ‘pet effect’, many are described as ‘health’ benefits arising from dog-ownership. Given that the term ‘health’ is defined as *“a complete state of physical, mental and social well-being, and not merely the absence of disease or infirmity”* (WHO, 1948), the benefits from pet-ownership could be categorised as physical, mental or social. In some cases, all three of these categories may be covered by a single activity, for example, the dog-owner who walks his dog everyday may benefit from the physical exercise, the mental stimulation of his walk whilst outside in the fresh air and the social benefits of meeting and talking to other dog-walkers on his way. This can make studying the mechanism(s) behind the reported benefit challenging, since the classic scientific practice of controlling all variables bar the one of interest may not be feasible and even where possible may not be desirable due to the artificiality of the resulting situation.

A further complication arises from the definition of the dependent variable of interest, which is often some form of “benefit”. The term ‘benefit’ could be thought to imply that the pet or the ownership of the pet causes an additional positive outcome (i.e. positive advantage) however, in some cases it might be the absence of or protection from negative outcomes that is the advantage, such as reduced stress (Allen *et al*, 1991) or decreased risk of depression (Siegel *et al*, 1999). Some of these prophylactic effects can be complex, especially when we also try to define who is likely to gain such benefits. For example, the daily exercise of a dog-walker may help to prevent weight gain which in turn, prevents the onset of weight-related health problems. Thus, there are potentially both direct and indirect benefits of pet-ownership; not everyone who enjoys walking is a dog-owner and not every owner enjoys walking, but perhaps the dog encourages some owners to walk more than they would otherwise. Accordingly, the benefits of dog-ownership may be largely concealed, maintaining the already good health of the owner when it might otherwise decline, but not making this individual healthier than the wider norm. It is worth noting that, with the exception of specified target groups such as owners with autism and those suffering from heart conditions, the majority of research on dog-owners describes them as being in good health (Cutt *et al*, 2007). Indeed even those that rate poorly on measures of physician visits and prescription medication use, still perceive themselves as

being in good health (Duvall, Antonacopoulos & Pychyl, 2010b). For those owners whose health was good before owning a dog, it is unclear whether the dog is contributing any additional benefits or is staving off potential negative outcomes.

The majority of literature in this field seems to focus on measuring the benefits *to the owner*, however, ‘ownership’ is a very non-specific term when considering the potential benefits arising from a relationship, since different owners will interact with their dogs in different ways. Ownership *per se* can be expected to deliver different benefits of varying magnitude, according to the characteristics of the owner, their dog and the relationship they develop. As Mills *et al* (2014) highlight, the dog-owner relationship is made up of many dimensions, each of which is characterised by different features that impact on the two parties involved in complex ways to define the overall relationship. These dimensions include: (1) the content of interactions – what the owner and dog do together, (2) the diversity of interactions, (3) the areas of reciprocity (for example, the expression of mutual affection) versus complementarity (the roles of care-giver and care-receiver) within the relationship, (4) the quality of interactions – i.e. their style as a whole and how each responds to the other (e.g. affiliative versus hostile style) (5) frequency of each type of interaction, (6) intimacy – the emotional and psychological closeness of individuals, which might be revealed from features such as the degree of self-disclosure made by an owner in their conversations with a dog, (7) the cognitive perspective of the interactions – such as the reasons owners perceive behind their dogs’ actions, (8) multidimensional qualities – style of responding in various situations and interactions (i.e. how reliably the dog reacts in all situations).

These qualities do not relate to each other in a simple mathematical way. A feature of any of them might, at least in theory, come to define the owner’s overall perception of the relationship as desirable or problematic, and so the way in which an owner views his pet, rather than ownership *per se* may be a better predictor of many of the benefits available, and this is not a simple variable to measure. The benefits of dog-ownership will vary between *types* of owner given the way each *type* of owner interacts with their dog, for example; the differences between how male and female owners interact with their dogs. As well as the benefits of dog-ownership varying between types of owner, it will also vary between individuals, especially when considering those with underlying health problems, whether they be physical, mental or social. Much of the literature on the health benefits of dog-ownership focuses attention on owners with a specific health problem such as heart attack patients (Friedmann *et al*, 1980), or studies the benefits of a therapy dog on hospitalised, psychiatric or nursing home patients (Barker & Dawson, 1998, Crowley-Robinson *et al*, 1996). However, it appears that this is sometimes used to imply within the media that there are similar benefits to those who are not ill, with headlines such as “Walk the dog, pet the cat — it's good for your heart” (Canada News, 2015). There therefore seems to be a gap in the scientific literature about the benefits of dog-ownership that are accrued to “normal- functioning” owners, and from what aspect of ownership any benefits might arise. For the purposes of this review, we define a ‘normally-functioning’ dog-owner

as one who is of sound physical and mental health, without any clinical conditions and who is living with their dog(s) at home, rather than a care facility. Specifically, we aimed to undertake a systematic review of the health benefits of dog-ownership for normally functioning owners in order to:

- Identify relationship dimensions that have been included
- Identify owner and dog characteristics that have been considered as potentially affecting the interaction and thereby potentially affecting the benefit too
- Identify the benefits associated with these dimensions of the relationship
- Assess the robustness of the current evidence for these effects

METHODS, DATA EXTRACTION & ANALYSIS

A fully detailed methodology of this systematic literature review can be found in Appendices 1a-c and is summarised in Figure 1.

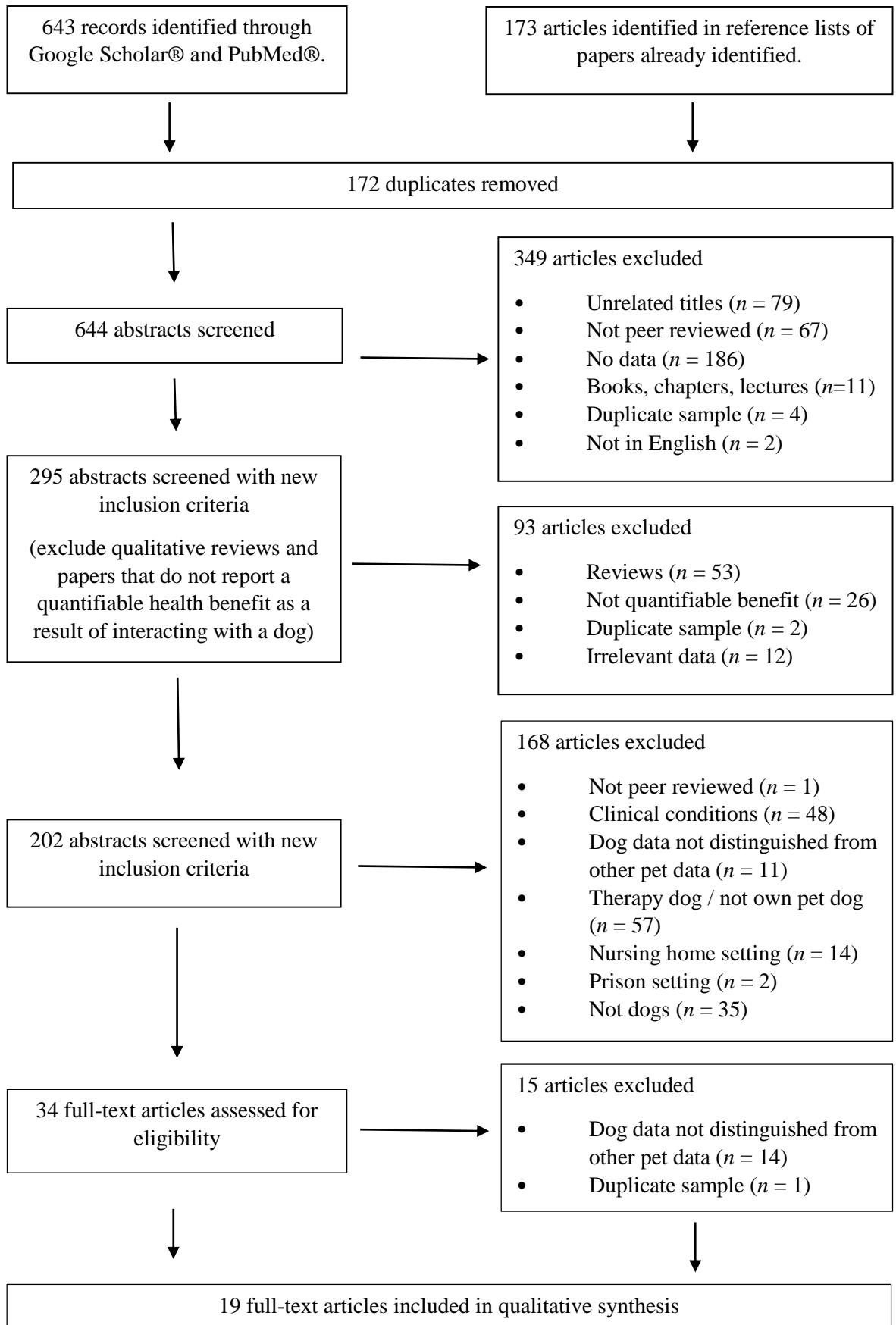
This systematic review followed the PRISMA procedural guidelines set out by Moher *et al* (2009). A comprehensive search of relevant publications was carried out using Google Scholar® and the database PubMed® between 13th January 2015 and 17th March 2015. An initial 816 articles were reduced to 19 studies that were included in the final qualitative analysis in order to address the question ‘What are the health benefits of dog-ownership to normally-functioning owners?’

In order to identify which relationship dimensions have been studied the data items extracted were any actions that might be used to characterise a dimension of the relationship using the framework of Mills *et al* (2014), both tangible (e.g. petting, playing, walking the dog) and intangible (e.g. considered the dog a family member, highly attached to the dog). Data were therefore classified into being relevant to one or more of the eight dimensions, described earlier.

Owner characteristics were classified as: 1) Gender 2) Age 3) Country of residence 4) Social status (including level of education, income and marital status). Dog characteristics were classified as: 1) Gender (including whether or not they had been castrated) 2) Age 3) Breed 4) Size.

The data relating to the benefits of the dog-owner relationship included 1) Dependent variables (e.g. heart rate, blood pressure, level of stress) and how were they measured (e.g. heart rate monitor, self-report) 2) Author reported findings 3) Whether or not the ‘pet effect’ was seen, i.e. whether interacting with one’s dog affected what was being measured in either a positive or negative way (e.g. caused an increase or decrease in heart rate, blood pressure etc.)

To achieve the fourth objective, the papers would be critiqued throughout the above mentioned evaluations with regard to study design and the level of evidence at which they were classified.

Figure 1: Flow chart of review selection process

RESULTS

Table 1: The nineteen papers reviewed.

Table 1: Summary of the reviewed papers	
Title	Reference
Presence of Human Friends and Pet Dogs as Moderators of Autonomic Responses to Stress in Women.	Allen <i>et al</i> , 1991
Physiological Effects of Human/Companion Animal Bonding.	Baun & Bergstrom, 1984
Humans' Bonding with their Companion Dogs: Cardiovascular Benefits during and after Stress.	Campo, & Uchino, 2013
Psychological Effects of Dog Ownership: Role Strain, Role Enhancement, and Depression.	Clark Cline, 2010
An Examination of the Relations between Social Support, Anthropomorphism and Stress among Dog Owners.	Duvall Antonacopoulos, & Pychyl, 2008
An Examination of the Potential Role of Pet Ownership, Human Social Support and Pet Attachment in the Psychological Health of Individuals Living Alone.	Duvall Antonacopoulos, & Pychyl, 2010a
The Possible Role of Companion-Animal Anthropomorphism and Social Support in the Physical and Psychological Health of Dog Guardians.	Duvall Antonacopoulos, & Pychyl, 2010b
A Longitudinal Test of the Belief that Companion Animal Ownership Can Help Reduce Loneliness.	Gilbey <i>et al</i> 2007
Benefits of dog ownership: Comparative study of equivalent samples.	González Ramírez, & Landero Hernández, 2014
Does Pet Dog Presence Reduce Human Cardiovascular Responses To Stress?	Grossberg & Vormbrock, 1988
Short-Term Interaction between Dogs and Their Owners: Effects on Oxytocin, Cortisol, Insulin and Heart Rate—An Exploratory Study.	Handlin <i>et al</i> , 2011
Physiological Effects of Petting a Companion Animal.	Jenkins, 1986
An Examination of Changes in Oxytocin Levels in Men and Women Before and After Interaction with a Bonded Dog	Miller <i>et al</i> , 2009
The Role of Phenylethylamine During Positive Human-Dog Interaction	Odendaal & Lehmann, 2000
Beneficial effects of pet ownership on some aspects of human health and behaviour.	Serpell, 1991
Friends With Benefits: On the Positive Consequences of Pet Ownership.	Shoda <i>et al</i> , 2011
Tails of Laughter: A Pilot Study Examining the Relationship between Companion Animal Guardianship (Pet Ownership) and Laughter.	Valeri, 2006
Pet Ownership, Type of Pet and Socio-Emotional Development of School Children.	Vidović <i>et al</i> , 1999
Loneliness and Pet Ownership Among Single Women.	Zasloff & Kidd, 1994

1. Relationship dimensions that have been included

The most common independent variable tested ($n = 8$) was a non-specific variable of ‘ownership’; non-specific in that no description of the relationship, such as what the owner and dog did together, was provided (Clark Cline, 2010, Duvall Antonacopoulos & Pychyl, 2010a, Gilbey *et al*, 2007, González Ramírez & Landero Hernández, 2014, Serpell, 1991, Valeri, 2006, Vidović *et al*, 1999, Zasloff & Kidd, 1994). However, two of these papers did specify that they were examining the difference before and after new pet acquisition (Gilbey *et al*, 2007, Serpell, 1991); i.e. they were looking at the effect of the dynamic process of acquiring a pet, rather than the ongoing effect of the dog. Other independent variables tested were various types of *interaction* including composites such as: *talking, petting, playing* (Miller *et al*, 2009), *talking, petting* (Handlin *et al*, 2011, Jenkins, 1986, Odendaal & Lehmann, 2000), and *petting without talking* (Baun & Bergstrom, 1984). Other papers covered *presence* (Allen *et al*, 1991, Campo & Uchino, 2013, Grossberg & Vormbrock, 1988), *anthropomorphism* (Duvall Antonacopoulos & Pychyl, 2008, Duvall Antonacopoulos & Pychyl, 2010b) and *social needs fulfilment* (Shoda *et al*, 2011). Five papers also indirectly covered *attachment* (Duvall Antonacopoulos & Pychyl, 2010a, Grossberg & Vormbrock, 1988, Miller *et al*, 2009, Vidović *et al*, 1999, Zasloff & Kidd, 1994).

‘Ownership’: Table 2 lists the relationship dimensions outlined by Mills *et al* (2014) and whether any aspects of each dimension have been detailed by any of the papers.

Table 2: Dimensions of the dog-owner relationship and the aspects of these dimensions that are covered by the papers in this review		
Dimension (Mills <i>et al</i>, 2014)	Aspects of the dimension that are covered	Reference
1 – Content of interactions	The relationship is between a dog and its ‘primary caretaker’	<ul style="list-style-type: none"> • González Ramírez & Landero Hernández, 2014 • Serpell, 1991 • Miller <i>et al</i>, 2009
	How often they walked their dogs	<ul style="list-style-type: none"> • Duvall Antonacopoulos & Pychyl, 2008 • Duvall Antonacopoulos & Pychyl, 2010b • Serpell, 1991
	How often the primary caretaker partook in various activities with their dog	<ul style="list-style-type: none"> • González Ramírez & Landero Hernández, 2014
	Examined various interactions including talking to, petting, playing with the dog	<ul style="list-style-type: none"> • Jenkins, 1986 • Miller <i>et al</i>, 2009

		<ul style="list-style-type: none"> • Odendaal & Lehmann, 2000 • Baun & Bergstrom, 1984 • Handlin <i>et al</i>, 2011
	The dog's company (presence) on the owner	<ul style="list-style-type: none"> • Allen <i>et al</i>, 1991, • Campo & Uchino, 2013, • Grossberg & Vormbrock, 1988
2 – Diversity of interactions	How often the primary caretaker partook in various activities with their dog	<ul style="list-style-type: none"> • González Ramírez & Landero Hernández, 2014
3 – Level of reciprocity versus complementarity	Whether “ <i>the relationship created anger or stress, or was an unwanted responsibility</i> ” and “ <i>whether the dog was considered to be a watchdog, pet or family member.</i> ”	<ul style="list-style-type: none"> • González Ramírez & Landero Hernández, 2014
4 – Quality of interactions	Whether “ <i>the relationship created anger or stress, or was an unwanted responsibility</i> ”	<ul style="list-style-type: none"> • González Ramírez & Landero Hernández, 2014
	Participants' perceived social support from their dog.	<ul style="list-style-type: none"> • Duvall Antonacopoulos & Pychyl, 2008
	The <i>style</i> of the relationship.	<ul style="list-style-type: none"> • Shoda <i>et al</i>, 2011
5 – Frequency and patterning of interactions	The relationship is between a dog and its 'primary caretaker'	<ul style="list-style-type: none"> • González Ramírez & Landero Hernández, 2014 • Serpell, 1991 • Miller <i>et al</i>, 2009
	<i>How often</i> the primary caretaker partook in various activities with their dog	<ul style="list-style-type: none"> • González Ramírez & Landero Hernández, 2014 • Serpell, 1991 • Miller <i>et al</i>, 2009
	How often they walked their dogs	<ul style="list-style-type: none"> • Duvall Antonacopoulos & Pychyl, 2008 • Duvall Antonacopoulos & Pychyl, 2010b • Serpell, 1991
6 – Intimacy of the relationship	Measure of attachment	<ul style="list-style-type: none"> • Vidović <i>et al</i>, 1999

		<ul style="list-style-type: none"> • Zasloff & Kidd, 1994 • Duvall Antonacopoulos & Pychyl, 2010a • Baun & Bergstrom, 1984, • Jenkins, 1986, • Miller <i>et al</i>, 2009 • Allen <i>et al</i>, 1991 • Campo & Uchino, 2013 • Grossberg & Vormbrock, 1988
	<i>“Where the dog slept and where the dog spent most of the day”</i>	• González Ramírez & Landero Hernández, 2014
	Participants’ perceived social support from their dog	• Duvall Antonacopoulos & Pychyl, 2008
	Whether the participant confides in their pet	• Duvall Antonacopoulos & Pychyl, 2010b
7 – Cognitive perspective of the interactions	What benefits the owners perceive to receive from their pets and what impact their pet has had on their life	• Duvall Antonacopoulos & Pychyl, 2010a
	<i>“Whether the dog was considered to be a watchdog, pet or family member.”</i>	• González Ramírez & Landero Hernández, 2014
	Level of anthropomorphism owners engage in	<ul style="list-style-type: none"> • Duvall Antonacopoulos & Pychyl, 2008 • Duvall Antonacopoulos & Pychyl, 2010b
	Owner’s perception of the relationship	• Shoda <i>et al</i> , 2011
	Level of anthropomorphism owners engage in	<ul style="list-style-type: none"> • Duvall Antonacopoulos & Pychyl, 2008 • Duvall Antonacopoulos & Pychyl, 2010b
	Participants’ perceived social support from their dog	• Duvall Antonacopoulos & Pychyl, 2008
8–Multidimensional qualities	NA	NA

Interactions: The papers ($n = 5$) that examined the effect of physical interactions such as talking to and petting a dog (Baun & Bergstrom, 1984, Handlin *et al*, 2011, Jenkins, 1986, Miller *et al*, 2009, Odendaal & Lehmann, 2000,) mostly consider the *content of interactions*, since it is what the owner and dog are doing that is of interest. However, one of these (Miller *et al*, 2009) also considered the *frequency of interactions* as this paper specified that the participant is the dog's 'primary caretaker'. Three of these papers also consider the dimension of *intimacy*, by adding measures of attachment in their methodology (Baun & Bergstrom, 1984, Jenkins, 1986, Miller *et al*, 2009). See Table 3 for the attachment measures used.

Presence: The papers that investigated the effect that the *presence* of one's pet dog would have on the owner (Allen *et al*, 1991, Campo & Uchino, 2013, Grossberg & Vormbrock, 1988) cover the *content of interactions*. Although physical interactions are not being examined, it is the dog's company that is the content. These three papers also considered the dimension of *intimacy* by including an attachment measure (Table 3, Allen *et al*, 1991 and Campo & Uchino, 2013).

Anthropomorphism: Two papers (Duvall Antonacopoulos & Pychyl, 2008, Duvall Antonacopoulos & Pychyl, 2010b) cover *cognitive perspective* since anthropomorphism is a psychological attribution by the owner, and also *content* and *frequency* of interactions in that the participants were asked to what extent they anthropomorphise their dogs as well as how often they walked their dogs. The first paper (Duvall Antonacopoulos & Pychyl, 2008) also measured participants' perceived social support from their dog, touching on the dimensions of *quality of interactions*, *intimacy* and *cognitive perspective*. In the second paper (Duvall Antonacopoulos & Pychyl, 2010b) an additional item to measure anthropomorphism was added, asking whether the participant confides in their pet, a feature of the *intimacy* dimension.

Social needs fulfilment: One paper (Shoda *et al*, 2011) covered *quality* and *cognitive perspective of interactions* since it is the style of the relationship and the owner's perception of the relationship that are really being examined here.

Attachment: Although a measure of pet attachment was utilised in nine of the papers in this review (Table 3), only five of these papers tested for the effect of attachment on the dependent variable (Duvall Antonacopoulos & Pychyl, 2010a, Grossberg & Vormbrock, 1988, Miller *et al*, 2009, Vidović *et al*, 1999, Zasloff & Kidd, 1994). Two of these papers examined pet attachment in general and the results provided are not specific to the dog-owning participants (Vidović *et al*, 1999 and Duvall Antonacopoulos & Pychyl, 2010a). The three papers that did test the effect of attachment on the dependent variable being studied found no significant correlations between attachment and cardiovascular reactivity during a stress task (Grossberg & Vormbrock, 1988), change in owners' oxytocin levels following an interaction with their dog (Miller *et al*, 2009) and loneliness (Zasloff & Kidd, 1994). Table 3 shows the attachment measures that were included by the papers in this review.

Table 3: Measures of attachment featured in the papers in the review	
Measures of Attachment	Reference
Child Pet Attachment Scale	• Vidović <i>et al</i> , 1999
Companion Animal Bonding Scale	• Campo & Uchino, 2013
Lexington Attachment to Pets Scale	• Duvall Antonacopoulos & Pychyl, 2010a • Miller <i>et al</i> , 2009
Pet Attitude Scale	• Allen <i>et al</i> , 1991 • Campo & Uchino, 2013 • Grossberg & Vormbrock, 1988 • Jenkins, 1986
Pet Relationship Scale	• Zasloff & Kidd, 1994
Unspecified measure of attachment	• Baun & Bergstrom 1984

This section highlights which of the relationship dimensions outlined by Mills *et al* (2014) feature in the papers in this review and which receive little to no attention. The dimensions most commonly acknowledged are *content*, whereby the effect of various interactions with the dog were examined, *intimacy*, with the inclusion of measures of attachment and *cognitive perspective*, when the owners' views of their relationship are investigated. At the other end of the spectrum, *multidimensional qualities* was not covered by any of the papers in this review. The remaining dimensions, although touched upon, are not explored in any great depth, the result being that the literature lacks robust evidence on the benefits of these less-obvious dimensions.

2. Owner and dog characteristics that have been considered

2.1 Owner characteristics that potentially affect the interaction and thereby potentially affect the benefit too

Appendix 2 summaries the owner characteristics that were provided in each of the papers in this review.

Gender: Only one paper (Duvall Antonacopoulos & Pychyl, 2008) examined whether male and female owners interact with their dogs in different ways (which may in itself result in different benefits being available). This study found that female dog-owners anthropomorphise more than male dog-owners.

One paper found that female dog-owners exhibited a significant increase in oxytocin levels following a prolonged interaction (talking, petting, playing for 25 minutes) with their dog whereas oxytocin levels of male dog-owners decreased significantly after the same type of interaction (Miller *et al*, 2009). Only one paper (Duvall Antonacopoulos & Pychyl, 2008) examined whether male and female owners interact with their dogs in different ways (which may in itself result in different benefits being available). This study found that female dog-owners anthropomorphise more than male dog-owners.

The only other differences in benefits between male and female dog-owners were found in two studies; one that reported that female dog-owners were more likely to benefit from greater well-being (characterised by low levels of depression) than male dog-owners (Clark Cline, 2010) and another that reported that in children, female dog-owners scored significantly higher on the Prosocial Orientation Scale than non-owners (Vidović *et al*, 1999). None of the studies found any effect in which male dog-owners benefited more than female dog-owners.

Age: Only two papers tested for an effect of age on the benefits of pet-ownership (Clark Cline, 2010 and Vidović *et al*, 1999) and neither found any effect of age.

Country of residence: None of the papers studied an effect of race or country of residence on the way in which dog-owners interact with their dogs or on the benefits the owners receive.

Social status:

- Single persons benefit from greater well-being (characterised by low levels of depression) compared to married/cohabiting couples (Clark Cline, 2010)
- Unmarried dog-owners anthropomorphise more than married and common-law dog-owners (Duvall Antonacopoulos & Pychyl, 2008)
- Anthropomorphism was lower in owners who reported receiving more social support from their families, but higher in owners who reported receiving high levels of social support from their dogs (Duvall Antonacopoulos & Pychyl, 2008)
- Dog-owners living alone with high levels of human social support were significantly less lonely than non-owners (Duvall Antonacopoulos & Pychyl, 2010a)
- Dog-owners with low levels of human social support and high anthropomorphism levels reported making significantly more visits to the doctor and taking significantly more prescription medications than owners who engage in low anthropomorphism (Duvall Antonacopoulos & Pychyl, 2010b)
- Dog-owners with high levels of human social support who engage in high levels of anthropomorphism had higher levels of stress than owners who engage in low levels of anthropomorphism (Duvall Antonacopoulos & Pychyl, 2010b)
- Dog-owners who engage in high levels of anthropomorphism had higher levels of depression than owners who engage in low levels of anthropomorphism, regardless of human social support (Duvall Antonacopoulos & Pychyl, 2010b)
- Owners who were ‘more conscientious and who tended to be more agreeable’ had dogs that provide greater social needs fulfilment and these owners also anthropomorphised to a greater extent than other owners (Shoda *et al*, 2011)
- Women living with pets were less lonely than people living alone without pets (Zasloff & Kidd, 1994)

This section draws attention to the small number of papers in this review that considered how owner characteristics could affect the outcome of the dependent variable. The effect of social status was investigated more frequently than characteristics such as gender, age and country of residence. Without testing for the effect of such characteristics, it cannot be ascertained whether the benefits reported in these papers stand true for all *types* of owner, regardless of age, gender and cultural, economic or social background.

2.2 Dog characteristics that potentially affect the interaction and thereby potentially affect the benefit too

Only three papers provided a description of the dogs used in their study (Baun & Bergstrom, 1984, Handlin *et al*, 2011, Odendaal & Lehmann, 2000) with one other paper utilising a Dog Personality Questionnaire, but not providing any information on the age, gender or breed of the dogs (Shoda *et al*, 2011).

None of the papers in the review tested the effect that dog *gender*, *age* or *breed* had on the dependent variable. One paper investigated whether the characteristics of the dogs would have an effect on the potential benefits to the owner (Shoda *et al* 2011). This paper found that dogs who were ‘less fearful, more active, less aggressive toward people and animals’ provided their owners with greater social needs fulfilment.

As with the previous section, this section highlights how few of papers in this review tested for the effect that the dogs’ characteristics may have had on the dependent variable. Without controlling for characteristics such as gender, breed and size of the dogs, it remains to be confirmed whether the benefits reported in these papers are a result of the relationship and interactions between the owner and dog, or whether the gender, breed or size of the dog makes a difference.

3. The benefits of these dimensions of the relationship

3.1 Dependent variables and how they were measured

Table 4 summaries the dependent variables that were measured and how they were measured.

Table 4: What did the papers in the review measure and how were they measured?

Title	What was measured?	How was it measured?	Reference
Presence of Human Friends and Pet Dogs as Moderators of Autonomic Responses to Stress in Women.	Effect of presence of own dog, presence of a friend and being alone on heart rate, blood pressure and skin conductance during a stress task	Heart rate, blood pressure and skin conductance monitors	Allen <i>et al</i> , 1991
Physiological Effects of Human/Companion Animal Bonding.	Effect of stroking own dog and stroking an unfamiliar dog on heart rate, blood pressure and respiration rate	Heart rate, blood pressure and respiratory rate monitors	Baun & Bergstrom, 1984
Humans' Bonding with their Companion Dogs: Cardiovascular Benefits during and after Stress.	Effect of presence of own dog, presence of a friend and being alone on heart rate and blood pressure	Heart rate and blood pressure monitors	Campo, & Uchino, 2013
Psychological Effects of Dog Ownership: Role Strain, Role Enhancement, and Depression.	Effect of dog-ownership on well-being (characterised by level of depression)	Center for Epidemiologic Studies – Depression Scale (CES-D) (self-report)	Clark Cline, 2010
An Examination of the Relations between Social Support, Anthropomorphism and Stress among Dog Owners.	Effect of level of dog anthropomorphism and perceived level of social support on stress levels	Anthropomorphism Scale (self-report) Perceived Stress Scale (self-report) Multidimensional Scale of Perceived Social Support (MSPSS) (self-report)	Duval Antonacopoulos, & Pynchyl, 2008
An Examination of the Potential Role of Pet Ownership, Human Social Support and Pet Attachment in the Psychological Health of Individuals Living Alone.	Effect of level of dog anthropomorphism and perceived level of social support on levels of stress, depression and loneliness	Anthropomorphism Scale (self-report) Perceived Stress Scale (self-report) Multidimensional Scale of Perceived Social Support (self-report) CES-D (self-report scale) UCLA Loneliness Scale, version 3 (self-report)	Duval Antonacopoulos, & Pynchyl, 2010a
The Possible Role of Companion-Animal Anthropomorphism and Social Support in the Physical and	Effect of level of dog anthropomorphism and perceived level	Anthropomorphism Scale (self-report) MSPSS (self-report) Perceived Stress Scale (self-report)	Duval Antonacopoulos, & Pynchyl, 2010b

Psychological Health of Dog Guardians.	of social support on levels of stress and depression	CES-D (self-report)	
A Longitudinal Test of the Belief that Companion Animal Ownership Can Help Reduce Loneliness.	The effect of adopting a pet on loneliness	UCLA Loneliness Scale (self-report)	Gilbey <i>et al</i> 2007
Benefits of dog ownership: Comparative study of equivalent samples.	The effect of dog-ownership on physical and psychological health	Life Satisfaction Scale (self-report) Subjective Happiness Scale (self-report) Patient Health Questionnaire (self-report) Perceived Stress Scale (self-report) Short Form health Survey (SF-12) (self-report)	González Ramírez, & Landero Hernández, 2014
Does Pet Dog Presence Reduce Human Cardiovascular Responses To Stress?	Effect of presence of own dog on heart rate and blood pressure during a stress task	Heart rate and blood pressure monitors	Grossberg & Vormbrock, 1988
Short-Term Interaction between Dogs and Their Owners: Effects on Oxytocin, Cortisol, Insulin and Heart Rate—An Exploratory Study.	Effect of stroking and talking to own dog on heart rate, blood pressure, serum oxytocin, cortisol and insulin	Heart rate and blood pressure monitors and blood samples	Handlin <i>et al</i> , 2011
Physiological Effects of Petting a Companion Animal.	Effect of petting and talking to own dog vs reading on heart rate and blood pressure	Heart rate and blood pressure monitors	Jenkins, 1986
An Examination of Changes in Oxytocin Levels in Men and Women Before and After Interaction with a Bonded Dog	Effect of talking, petting and playing with own dog for 25 minutes on serum oxytocin levels	Blood sample	Miller <i>et al</i> , 2009
The Role of Phenylethylamine During Positive Human-Dog Interaction	Effect of talking softly, touching and stroking own dog vs unfamiliar dogs on blood pressure and phenylacetic acid	Blood pressure monitor and blood sample	Odendaal & Lehmann, 2000

Beneficial effects of pet ownership on some aspects of human health and behaviour.	Effect of adopting a pet on physical and psychological health	General Health Questionnaire (GHQ-30) (self-report) A checklist of 20 health complaints experienced in the last month Number and duration of walks taken in the last 2 weeks	Serpell, 1991
Friends With Benefits: On the Positive Consequences of Pet Ownership.	Effect of dog-ownership on social needs fulfilment	Dog Personality Short-Form (self-report) UCLA Loneliness Scale (self-report) Self-perceived fitness and frequency of exercise (self-report) Self-Esteem Scale (self-report) Perceived Stress Scale (self-report) NEO Personality Inventory–Revised (self-report) Inclusion of Others in the Self Scale (self-report)	Shoda <i>et al</i> , 2011
Tails of Laughter: A Pilot Study Examining the Relationship between Companion Animal Guardianship (Pet Ownership) and Laughter.	Frequency of laughter among dog-owners vs cat-owners vs owners of both dogs and cats	Daily Laughter Record (self-report)	Valeri, 2006
Pet Ownership, Type of Pet and Socio-Emotional Development of School Children.	Effect of pet-ownership on the socio-emotional development of school children	Social Anxiety Scale for Children (self-report) Child Loneliness Scale (self-report) Child Empathy Scale (self-report) Child Prosocial Orientation Scale (self-report) Perception of Family Climate (self-report)	Vidović <i>et al</i> , 1999
Loneliness and Pet Ownership Among Single Women.	Effect of pet-ownership on loneliness	UCLA Loneliness Scale (self-report)	Zasloff & Kidd, 1994

3.2 Author reported findings

Table 5 summarises the results of the nineteen studies in this review, including whether or not the ‘pet effect’ (*‘the idea that living with an animal can improve human health, psychological well-being, and longevity’*, Herzog, 2011) was seen.

Table 5: Summary of the author findings of the papers in the review			
Benefit	Findings	‘Pet effect’ seen?	Reference
Physical health	People who adopted a dog reported a significant decrease in minor health problems ($p < 0.0001$) and a significant improvement ($p < 0.0006$) in General Health Questionnaire scores after adopting a dog whereas people who did not adopt a dog reported no significant changes over the experimental period.	Yes	Serpell, 1991
	Dog-owners scored significantly higher than non-owners on measures of health ($p = 0.016$ and $p = 0.021$), vitality ($p = 0.002$) and absence of bodily pain ($p = 0.010$).	Yes	González Ramirez & Landero Hernández, 2014
	Among dog-owners with low levels of human social support, dog-owners who engage in high levels of anthropomorphism reported significantly more doctor visits ($p < 0.01$) and took more medication ($p < 0.001$) than dog-owners who engage in low levels of anthropomorphism.	Yes (negative)	Duvall Antonacopoulos & Pychyl, 2010b
Psychological health	Dog-owners scored significantly higher than non-owners on standardised measures of emotional role ($p = 0.002$), social functioning ($p = 0.001$) and mental health ($p = 0.039$). There was a negative correlation between psychosomatic symptoms and frequency of dog-walking.	Yes	González Ramirez & Landero Hernández, 2014

	Dog-owners who engaged in high levels of anthropomorphism reported having higher levels of social support from their dogs than owners who engaged in low levels of anthropomorphism ($p < 0.01$).	Yes	Duvall Antonacopoulos & Pychyl, 2008
Socio-emotional development	Children with pet dogs scored higher on a standardised measure of empathy and prosocial orientation than non-dog owning children ($p < 0.05$).	Yes	Vidović <i>et al</i> , 1999
Hormones	After a 25 minute interaction (petting, talking, playing) with their own dog, oxytocin levels of female owners increased significantly (58.4%) whereas oxytocin levels in male owners decreased significantly (21.5%).	Partial	Miller <i>et al</i> , 2009
	After talking softly, touching and stroking their own dog, dog-owners levels of phenylacetic acid increased significantly ($p < 0.001$).	Yes	Odendaal & Lehmann, 2000
	Oxytocin levels of dog-owners and non-owners did not increase significantly after a 3 minute interaction (stroking and talking) with their dog. Cortisol levels of dog-owners decreased significantly 15 minutes into the experiment ($p = 0.055$) but then increased slightly within 30 minutes of the experiment. Insulin levels of dog-owners decreased significantly throughout the 60 minute experimental period ($p = 0.018$).	Partial	Handlin <i>et al</i> , 2011
Cardiovascular effects	Dog-owners with their dog present had lower diastolic blood pressure ($p < 0.05$) and heart rate reactivity ($p < 0.05$) than dog-owners with a friend-present during a stressor task and also lower (although not significantly) systolic blood pressure during recovery from the task ($p = 0.09$).	Yes	Campo & Uchino, 2013
	Dog-owners had a significant decrease in mean arterial blood pressure ($p < 0.01$) after interacting (stroking and talking) with their own dog.	Yes	Odendaal & Lehmann, 2000
	Dog-owners with their dog present had significantly lower systolic blood pressure ($p < 0.0001$) and skin conductance ($p < 0.0001$) than dog-owners with their dog absent during two stressor tasks in a home setting (all female subjects).	Yes	Allen <i>et al</i> , 1991

	No significant difference in cardiovascular reactivity to a stressor was found between a group of dog-owners with their dog present and a group of dog-owners with their dog absent (all male subjects).	No	Grossberg & Vormbrock, 1988
	Heart rates of dog-owners decreased significantly ($p = 0.0008$) during the experimental period following a 3 minute interaction (stroking and talking) with their own dog.	Yes	Handlin <i>et al</i> , 2011
	Dog-owners showed a decrease in systolic ($p < 0.001$) and diastolic blood pressure ($p < 0.01$), heart rate ($p < 0.001$) and respiration rate ($p < 0.01$) whilst interacting (petting, no talking) with their own dog.	Yes	Baun & Bergstrom, 1984
	Dog-owners showed significantly lower systolic ($p < 0.001$) and diastolic ($p < 0.01$) blood pressure but not heart rates while interacting (petting, talking, no rough play) with their own dog.	Yes	Jenkins, 1986
Loneliness	No significant differences in loneliness were found in people before and after they adopted a dog.	No	Gilbey <i>et al</i> , 2007
	Among individuals living alone with high levels of human social support, dog-owners were significantly less lonely than non-owners ($p < 0.01$). This was not the same for owners with low levels of human social support.	Partial	Duvall Antonacopoulos & Pychyl, 2010a
	No significant differences in loneliness were found between dog-owners, cat-owners and non-owners regardless of living alone or with other people.	No	Zasloff & Kidd, 1994
Depression	There is a correlation between dog-ownership and lower depression levels in single owners ($p = 0.034$) and female owners ($p = 0.040$).	Yes	Clark Cline, 2010
	Among individuals living alone with both low and high levels of human social support, there was no significant difference between the depression levels of dog-owners and non-owners ($p > 0.05$).	No	Duvall Antonacopoulos & Pychyl, 2010a
	Dog-owners those who engage in high levels of anthropomorphism had higher depression levels than dog-owners who engage in low levels of anthropomorphism- this was true of both owners with low levels of human social support ($p < 0.05$) and high levels of human social support ($p < 0.01$).	Yes (negative)	Duvall Antonacopoulos & Pychyl, 2010b

Social needs fulfilment	Dog-owners whose dogs provide greater social needs fulfilment reported greater well-being ($p < 0.01$). Dog-owners whose dogs provided greater social needs fulfilment anthropomorphised more ($p < 0.001$) and were 'more conscientious and agreeable'.	Yes	Shoda <i>et al</i> , 2011
Stress	Small positive correlation found between high levels of anthropomorphism and stress in dog-owners ($p < 0.05$).	Yes (negative)	Duvall Antonacopoulos & Pychyl, 2008
	Among dog-owners with high levels of human social support, those who engage in high levels of anthropomorphism had higher stress levels than dog-owners who engage in low levels of anthropomorphism ($p < 0.01$).	Yes (negative)	Duvall Antonacopoulos & Pychyl, 2010b
	Dog-owners scored significantly lower than non-owners on a standardised measure of stress ($p = 0.001$).	Yes	González Ramirez & Landero Hernández, 2014
Laughter	Dog-owners laughed more frequently than cat owners ($p < 0.01$) but not significantly more frequently than non-pet-owners.	Partial	Valeri, 2006

Physical health benefits: Eight papers investigated the effect that *interacting* with one's dog has on the physical health of dog-owners, whilst another three examined the effect that '*ownership*' as a whole has on physical health of dog-owners. The eight papers that examined various interactions covered:

- Presence only (Allen *et al*, 1991, Campo & Uchino 2013, Grossberg & Vormbrock, 1988)
- Petting, no talking (Baun & Bergstrom, 1984)
- Stroking, petting and talking to dog for 3 minutes (Handlin *et al*, 2011)
- Interact normally, including speech, but no rough play (Jenkins, 1986)
- Talking to, petting and/or playing for 25 minutes (Miller *et al*, 2009)
- Talking softly, touching and stroking (Odendaal & Lehmann, 2000)

No definition for 'petting' was supplied in any of the papers.

These papers report that touching, stroking and talking to one's pet dog can significantly lower blood pressure, heart rate and respiration rate (Baun & Bergstrom, 1984, Handlin *et al*, 2011, Jenkins, 1986, Odendaal & Lehmann, 2000) and that the mere presence of one's dog during stressful tasks has the same effect in female owners (Allen *et al*, 1991, Campo & Uchino 2013) although not in an all-male sample (Grossberg & Vormbrock, 1988). Skin conductance in the presence of one's dog was found to be significantly lower than with a friend present in the home setting but not in a laboratory setting (Allen *et al*, 1991). See Table 5 for values.

Levels of cortisol and insulin were reported to decrease in owners following 3 minutes of talking and stroking (Handlin *et al*, 2011) however, this paper did not control for time of day and whether or not the participants had eaten beforehand, both factors that would affect these hormone levels. Levels of phenylacetic acid (a marker of positive emotion) were reported to increase significantly in dog-owners after stroking and talking to their dog (Odendaal & Lehmann, 2000).

The two papers that measured changes in oxytocin had conflicting results. One found no significant difference in dog-owner's oxytocin levels after three minutes of stroking and talking to their dog (Handlin *et al*, 2011) whilst the other found a significant increase in oxytocin for female owners and a significant decrease in oxytocin for male owners, following 25 minutes of talking, petting and playing with their dog (Miller *et al*, 2009), see Table 5 for values. Levels of cortisol and insulin were reported to decrease following three minutes of stroking and talking to one's dog (Handlin *et al*, 2011).

The three papers that investigated the relationship between '*ownership*' and physical health all found a positive association between the two, characterised by a reduction in minor health problems following new pet acquisition (Serpell, 1991), higher general health scores than non-owners on a standardised measure (González Ramírez & Landero Hernández, 2014) and rating themselves as being in good health (Duvall Antonacopoulos & Pychyl, 2010b). However, one of these papers also

found that owners who engage in high levels of anthropomorphism reported significantly more visits to the doctor and took significantly more prescription medications than non-owners (Duvall Antonacopoulos & Pychyl, 2010b).

Loneliness, depression and stress: Seven papers included self-report measures of either loneliness, depression or stress or a combination of these (see Table 4 for measures used). The results of these papers show that although dog-owners generally have lower stress levels than non-dog-owners (González Ramírez & Landero Hernández, 2014), there is a correlation between high levels of anthropomorphism and high levels of stress and depression (Duvall Antonacopoulos & Pychyl, 2010b). The papers that focused on loneliness found that there was no effect of dog-ownership on loneliness (Gilbey *et al*, 2007, Zasloff & Kidd, 1994) except in individuals with high levels of human social support, whereby dog-owners were significantly less lonely than non-dog-owners (Duvall Antonacopoulos & Pychyl, 2010a). One paper reported that dog-ownership may be associated with lower levels of depression in single and female owners (Clark Cline, 2010).

Other psychological benefits: Dog-owners were found to score higher than non-owners on standardised measures of psychological health (González Ramírez & Landero Hernández, 2014) and both physical and psychological health scores were found to increase with the number of and duration of walks taken (González Ramírez & Landero Hernández, 2014, Serpell, 1991).

Social needs fulfilment: One paper found that owners whose dogs provide greater social needs fulfilment benefitted from greater well-being, characterised by higher scores on the self-report measures used (see Table 4). These owners tended to be more agreeable, conscientious and also anthropomorphised more (Shoda, 2010).

Laughter: One study examined the differences in frequency of and reason for laughter between dog-owners and non-owners. This study reported that dog-owners laughed more frequently than cat-owners but not more frequently than non-pet-owners. It was also reported that dog-owners laughed less often from situations involving their dogs than owners of both cats and dogs (Valeri, 2006).

Socio-emotional development: One paper examined the differences in the socio-emotional development of school children with and without pet dogs. This study found that dog-owning children were more empathetic and scored higher on the Prosocial Orientation Scale than those without dogs (Vidović *et al*, 1999).

4. Robustness of the current evidence

Table 6 summarises the study design and sample descriptions of the papers reviewed, including the level of evidence they were classified as (‘*a ranking of evidence by the type of design or research methodology that would answer the question with the least amount of error and provide the most reliable findings*’ (Melnyk & Fineout-Overholt, 2005)).

Table 6: Summary of the study design of the papers in the review

Evidence Level	Study Design	Control	Sample size?	How was sample recruited?	Tested for effect of owner characteristics?	Tested for effect of dog characteristics?	Reference
2 (random groups)	Between-groups	Dog only present vs alone vs friend only present	45	Advertisement	No	No	Allen <i>et al</i> , 1991
4 (observed)	Within-subject	Subjects acted as own control	21	Not specified	No	No	Baun & Bergstrom, 1984
2 (random groups)	Between-groups	Dog only present vs alone vs friend only present	159	Advertised in newspapers and flyers around university campus	No	No	Campo, & Uchino, 2013
6 (survey)	Within-subjects	No control	201	Random digit dialling	Gender Age Marital status	No	Clark Cline, 2010
6 (survey)	Within-subject	No control	94	Questionnaires distributed at pet stores, parks etc	Gender Marital status Level of social support	No	Duvall Antonacopoulos & Pychyl, 2008
6 (survey)	Between-groups	Dog-owners vs cat-owners vs non-owners	132	Snowball email to family and friends	Level of social support	No	Duvall Antonacopoulos & Pychyl, 2010a
6 (survey)	Within-subject	No control	203	Snowball email to family and friends, posters in community, links on websites	Level of social support Level of anthropomorphism Marital status Level of education Level of income Living situation	No	Duvall Antonacopoulos & Pychyl, 2010b

					Self-perceived health		
6 (survey)	Within and between subjects	Those who adopted a new pet vs those who did not	59	Questionnaires distributed at rehoming centre	No	No	Gilbey <i>et al</i> 2007
6 (survey)	Between- groups	Matched control of non-dog- owners	602	Snowball sampling	No	No	González Ramírez, & Landero Hernández, 2014
2 (random groups)	Between- groups	16 male dog- owning students with their dog absent	32	Not specified	No	No	Grossberg & Vormbrock, 1988
3 (non- random groups)	Between- groups	Non-dog-owners who did not interact with a dog	30	Information provided at vets and workplaces	No	No	Handlin <i>et al</i> , 2011
4 (observed)	Within- subject	Subjects acted as own control	20	Not specified	No	No	Jenkins, 1986
4 (observed)	Within- subject	Subject acted as own control	20	Flyers posted in community and a stall at a pet fair	Gender	No	Miller <i>et al</i> , 2009
3 (non- random groups)	Between- groups	Dog-owners interacting with unfamiliar dogs	18	Not specified	No	No	Odendaal & Lehmann, 2000
6 (survey)	Between- groups	Non-owners	71	Participants invited from rehoming centres shelters	No	No	Serpell, 1991

6 (survey)	Within-subject	No control	56	Information provided to vet staff and friends	Owner personality Level of anthropomorphism	Dog personality	Shoda <i>et al</i> , 2011
6 (survey)	Between-groups	Dog-owners vs cat-owners vs owners of both cats and dogs	95	Recruited from dog-friendly locations, e.g. parks	No	No	Valeri, 2006
6 (survey)	Between-groups	Dog-owners vs cat-owners vs 'other'-owners vs non-owners	826	Visited schools and conducted questionnaires during class	Gender Age	No	Vidović <i>et al</i> , 1999
6 (survey)	Between-groups	Dog-owners vs cat-owners vs non-owners	148	Recruited from university lectures	Living situation	No	Zasloff & Kidd, 1994

Only eight papers (see Table 6) tested for the effect of various owner characteristics however, of those that tested for an effect of gender (Clark Cline, 2010, Duvall Antonacopoulos & Pychyl, 2008, Miller *et al*, 2009 and Vidović *et al*, 1999), none of these investigated whether male and female dog-owners interact with or view their dogs differently before conducting the experiment. In other words, the effect of gender may be a result of males and females interacting differently with their dogs and as a result gaining different benefits. Similarly, only one paper (Shoda *et al*, 2011) investigated whether the characteristics of the dog would have an effect on the dependent variable.

Many of the papers in this review discuss an association between either *dog-ownership* or *interacting* with one's dog and their chosen dependent variable(s) however, only five of the papers are of a longitudinal design (Baun & Bergstrom, 1984, Gilbey *et al*, 2007, Jenkins, 1986, Miller *et al*, 2009, Serpell, 1991). The remaining papers are cross-sectional and so the causal direction of any associations they have found cannot be ascertained.

DISCUSSION

Despite the abundance of literature on the health benefits of dog-ownership there remains gaps in the fundamental framework of such research that has resulted in a wealth of half-answered questions and partially supported theories. As with any field of research, the more momentum it gains, the more questions are raised but if future research is going to successfully answer these questions, the methods we use to answer them must first be deconstructed and rigorously re-assembled.

Relationship dimensions that have been included

One of the objectives of this systematic literature review was to identify dimensions of the dog-owner relationship that have been included in the literature, the most of which appeared to be ‘ownership’. As aforementioned, the term ‘ownership’ provides no specific information on any of the eight relationship dimensions outlined by Mills *et al* (2014) and so it cannot be said for certain which aspect of the relationship is actually providing the benefits. Given that the nature of the relationship, in terms of the interactions shared, is likely to be a key predictor of the benefits available to the owner, the dynamic of the relationship should be clearly described in such studies. By fully characterising the relationship being studied, researchers stand a much better chance of determining which aspect of the relationship can be attributed to which benefit.

The five papers that examined the effect of *interacting* with dogs, did so without controlling for the mere presence of the dogs. As a result, the outcomes that they measured cannot be definitively attributed to the interaction being studied, since there is a possibility that the same outcome would have been seen as a result of the dogs’ presence alone. Similarly, only one of these studies (Baun & Bergstrom, 1984) limited their investigation to a single type of interaction, ‘petting’, whereas the others included touching, talking to and playing with the dog within their investigation. In such studies it cannot be determined which aspect of the interaction has led to the measured outcome. In order to avoid this over-generalisation of findings in future research, control groups should be utilised in which owners are examined in the presence of their dog but without engaging in the interaction being investigated along with control groups that measure the effect of touching only, talking only and stroking only. These would make for beneficial comparisons and provide clearer evidence for the primary cause of the reported benefits. From these papers, it is difficult to say for certain whether presence alone is beneficial or whether a more reciprocal interaction is necessary for these benefits to take place.

Benefits associated with these relationship dimensions

To summarise, the outcomes reported in the 19 studies included in this review were:

- Better physical health in dog-owners compared to non-owners* (González Ramírez & Landero Hernández, 2014, Serpell, 1991)

- Dog-owners are more empathetic and pro-socially orientated (Vidović *et al*, 1999)
- Hormones associated with bonding increase after interaction with own dog (Miller *et al*, 2009, Odendaal & Lehmann, 2000)
- Heart rate and blood pressure decrease with own dog present** (Allen *et al*, 1991, Baun & Bergstrom, 1984, Campo & Uchino, 2013, Handlin *et al*, 2011, Jenkins, 1986)
- Dog-owners less stressed than non-owners* (González Ramírez & Landero Hernández, 2014)
- Greater social needs fulfilment from dog is linked to greater well-being (Shoda *et al*, 2011)
- Little difference in depression between dog-owners and non-owners* (Clark Cline, 2010, Duvall Antonacopoulos & Pychyl, 2010a)
- No difference in psychological health, frequency of laughter or loneliness between dog-owners and non-owners (Duvall Antonacopoulos & Pychyl, 2010a, Gilbey *et al*, 2007, González Ramírez & Landero Hernández, 2014, Valeri, 2006, Zasloff & Kidd, 1994)

*One paper provided conflicting results and found that dog-owners with low human social support and high levels of anthropomorphism visited the doctor more often and took more medication. This paper also reported that even with high levels of human social support, owners with high levels of anthropomorphism had higher levels of stress and depression (Duvall Antonacopoulos & Pychyl, 2010b).

** This finding was not replicated in an all-male sample (Grossberg & Vormbrock, 1988).

Physical health benefits: The papers that examined the effect of owning and interacting with pet dogs reported that interacting with your dog can lower cardiovascular parameters such as heart rate and blood pressure (Allen *et al*, 1991, Baun & Bergstrom, 1984, Campo & Uchino 2013, Handlin *et al*, 2011, Jenkins, 1986, Odendaal & Lehmann, 2000) and that dog-ownership is associated with good self-perceived health (Duvall Antonacopoulos & Pychyl, 2010b, González Ramírez & Landero Hernández, 2014, Serpell, 1991). It has already been discussed that the interactions between owner and dog that were investigated were not mutually exclusive and as a result, the reported benefits cannot be definitively attributed to one type of interaction.

Among the papers, two examined changes in oxytocin levels before and after interacting with one's dog (Handlin *et al*, 2011, Miller *et al*, 2009). The primary difference between these two studies is the length of the dog-owner interaction before oxytocin was measured. It would appear that male dog-owners do not benefit from an increase in oxytocin levels following an interaction with their dog and that it takes longer than 3 minutes for oxytocin levels to increase significantly in female owners after interacting with their dog. Future research should consider how the length of the dog-owner interaction could affect results and plan their methodology accordingly.

Loneliness, depression and stress: Three papers examined loneliness in dog-owners and reported no significant effect of dog-ownership on loneliness (Duvall Antonacopoulos & Pychyl, 2010a, Gilbey

et al, 2007, Zasloff & Kidd, 1994) apart from in individuals with high levels of human social support, whereby dog-owners were significantly less lonely than non-owners (Duvall Antonacopoulos & Pychyl, 2010a). This suggests that dog-ownership provides an additional source of company that on its own cannot reduce loneliness; a source that is complimentary to (but cannot be a substitute of) high levels of human social support.

The results of the papers that studied the effect of dog-ownership on depression suggest that there is no association between depression and the age of the owner, the amount of physical activity they engage in, or their level of human social support (Clark Cline, 2010, Duvall Antonacopoulos & Pychyl, 2010a, Duvall Antonacopoulos & Pychyl, 2010b). However, associations between marital status and gender were found (Clark Cline, 2010), suggesting that dog-ownership is more likely to reduce depression in single and female owners. An association between depression and level of anthropomorphism engaged in was also found (Duvall Antonacopoulos & Pychyl, 2010b), with owners with high levels of anthropomorphism having higher levels of depression (Duvall Antonacopoulos & Pychyl, 2010b). Similarly, the papers (Duvall Antonacopoulos & Pychyl, 2008, Duvall Antonacopoulos & Pychyl, 2010b, González Ramírez & Landero Hernández, 2014) that investigated stress levels in dog-owners compared to non-dog-owners found that although dog-owners generally have lower stress levels than non-owners, dog-owners who engage in high levels of anthropomorphism have higher levels of stress than those who do not.

Given that these studies were of a cross-sectional design, it cannot be determined whether high levels of anthropomorphism cause higher stress and depression levels or whether dog-owners with high levels of stress and depression choose to anthropomorphise to a greater extent. There is evidence to suggest that some dog-owners regard their dogs as a source of comfort and social support (Allen *et al*, 1991, Archer, 1997, Siegel, 1993 - discussed in more detail later) and since the seeking of social support for moral support and sympathy is a coping strategy for people at times of stress (Carver *et al*, 1989) it is plausible that anthropomorphising dogs into an understanding presence is also a coping mechanism employed by owners with high levels of stress. The same may be said of dog-owners with high levels of depression. From interviews with dog-owners conducted by Allen (1995), owners dealing with difficult and depressing life changes preferred their dog's company over that of friends of family because "the dog provided the desirable qualities of a best friend (e.g., listening, physical contact, empathy) without any undesirable evaluative ones". With this in mind, it is possible that dog-owners with higher levels of stress and depression do anthropomorphise their dogs to a greater extent as a coping mechanism, rather than the higher levels of stress and depression being a result of the anthropomorphism.

One possible way of determining the direction of this relationship would be to conduct a longitudinal study in which those owners with high stress levels that engage in high levels of anthropomorphism are encouraged to stop anthropomorphising over an experimental period (perhaps by educating them

on the true meaning behind their dog's behaviour since it has been proposed that some owners misinterpret and anthropomorphise their dog's behaviour when they do not understand the reason behind it (Duvall Antonacopoulos & Pychyl, 2008)). Stress levels from before and after the experimental period could then be compared to determine whether anthropomorphism is a cause of high stress levels in dog-owners.

Other psychological benefits: One paper that investigated psychological health of dog-owners compared to non-dog-owners found a positive association between dog-ownership and mental health (González Ramírez & Landero Hernández, 2014). However, this paper adopted a cross-sectional study design and so it cannot be determine whether dog-ownership leads to better mental health, or whether individuals with greater mental health are more likely to own a dog. Another paper (Serpell, 1991) that examined psychological health also found a link between dog-ownership and psychological health in a longitudinal study that tested both physical and psychological health scores after a dog was adopted. An increase in the number of recreational walks taken correlated with the improved health scores suggesting that the mechanism for improved physical and psychological health as a result of dog-ownership may be due to the increased number and duration of walks taken.

Social needs fulfilment: One paper (Shoda *et al*, 2011) reported that owners whose dogs provide greater social needs fulfilment benefitted from greater well-being and that these owners tended to be more agreeable, conscientious and also anthropomorphised more. This supports the notion that the nature of the owner-dog relationship, in terms of *cognitive perspective*, plays an important role in determining which, if any, benefits are received.

Laughter: The one study to examine frequency of laughter between dog-owners and non-dog-owners found that dog-owners laughed more frequently than cat-owners but not more frequently than non-pet-owners (Valeri, 2006), suggesting that dogs may provide a source of joy to their owners that is less available to cat owners but different to those found by non-pet-owners.

Socio-emotional development: The only study to investigate the differences in socio-emotional development of pet-owning school children found that dog-owning children were more empathetic and scored higher on the Prosocial Orientation Scale than those without dogs (Vidović *et al*, 1999), suggesting that having a dog at home may impact the emotional development of children.

Relationship dimensions that have not been included

The minimal amount of research into the different features of *intimacy* that play a key role in human-dog relationships is perhaps surprising given the benefits reported as arising from the intimacy experienced within human-human relationships, such as fewer stress related symptoms and faster recovery times from illness (Prager, 1995), which have also been reported to arise within human-dog relationships (Siegel, 1990).

A principle feature of intimacy, *self-disclosure*, is defined by Cozby (1973) as “*any information about himself which Person A communicates verbally to Person B*” (pg 73). Given that this definition outlines no need for a verbal response from the recipient, it is reasonable to assert that the term ‘self-disclosure’ can be applied equally to disclosures made to humans and dogs alike. The Pet Attitude Inventory (PAI, Wilson *et al* 1987) and the Monash Dog Owner Relationship Scale (MDORS, Dwyer, 2006) are among the few scales to specifically acknowledge the occurrence of self-disclosure in our relationships with dogs, through the inclusion of items such as: “Do you confide in your pet?” (Wilson *et al*, 1987, pg 81) and “How often do you tell your dog things you don’t tell anyone else?” (Dwyer, 2006, pg 251). Again, they do not explore the diversity of this self-disclosure which may vary in terms of its breadth and depth, ie: the variety of disclosures made (in terms of positive or negative aspects), how much detail is shared, or how much time is spent disclosing (Cozby, 1973).

With regard to the health benefits of self-disclosure, the findings of multiple studies support the notion that disclosing concerns of a negative nature is beneficial to health, particularly in regard to the over-coming of a traumatic experience nature (Pennebaker and Beall, 1986, Pennebaker *et al*, 1989, Greenberg & Stone, 1992). On the other hand, research into health benefits as a result of positive disclosures is minimal, although there is literature to suggest that positive emotions are beneficial to health (Tugade *et al*, 2004) and that focusing on positive emotions is an effective coping mechanism for some people in times of stress (Frazier & Burnett, 1994).

In 1986, Pennebaker and Beall investigated the potential for long-term health benefits following a written disclosure about a stressful topic. The results showed health benefits in the long-term, with participants reporting improved health in the six months following the essay. Greenberg and Stone replicated this study in 1992 and although they failed to replicate the findings of the 1986 study, they did find that long-term health benefits were related to the severity of the trauma disclosed. That is to say; participants who rated their traumas as being ‘severe’ were seen to benefit from the disclosure more than subjects who rated their traumas as ‘less severe’. Other research has found that self-concealment significantly correlates with self-report measures of anxiety, depression, and bodily symptoms (Larson & Chastain, 1990).

More recently, in the counsellor-client setting, Kahn and colleagues (2001) reported that clients who tend to disclose personally distressing information reported experiencing greater support from their environment, a greater sense of wellbeing, and were less predisposed to experience negative emotions than clients who concealed their distress.

Little research has been done on the benefits of disclosing positive emotions, although the literature available suggests that such disclosures are related to fewer symptoms of stress (Hoyt & Renshaw, 2013) and providing a sense of acceptance and personal validation (Hook *et al*, 2003) as opposed to tangible improvements in physical health.

As early as 1959, it was argued that “*the ability to allow one’s real self to be known to at least one ‘significant’ other is a prerequisite for a healthy personality*” (Jourard, 1959). In 1986, Pennebaker and Beall reviewed the potential mechanisms by which self-disclosure is beneficial to health and concluded that discussing trauma allows for social comparison (Wortman & Dunkel-Schetter, 1979) and helps the discloser to give meaning to the trauma (Silver & Wortman, 1980). “... *it helps people gain meaning about their experiences, reframe these experiences as non-threatening, assimilate them into the self, and in some cases, engage in dramatic reconstruction of the self-system*” (Pennebaker & Keough, 1999).

An additional argument is that, deliberately *not* thinking or talking about a negative experience requires some effort and psychological strain resulting in illness, and that removal of this ‘inhibition’ will result in the removal of the illness (Pennebaker et al, 1998, Pennebaker & Keough, 1999, Stroebe et al, 2006).

A review by Cozby (1973) found that willingness to self-disclose varies between ages, religions, social class, and gender. Early research claims that one’s home environment during childhood affects a person’s self-disclosure patterns, with those from high-nurturing homes disclosing more to their parents than their friends and those from low-nurturing homes choosing to disclose more to their friends than their parents (Doster & Strickland, 1969).

A common theme in the literature is that women disclose more than men (Dindia & Allen, 1992, Sholley & Foubert, 1996, Morgan, 1976, Morton, 1978, Taylor *et al*, 2000, McDonald & Korabik, 1991) and that married women are more open to making negative disclosures to their spouse than their husbands are (Katz *et al*, 1963, Levinger & Senn, 1967, Snell *et al*, 1988). However, research conducted by Derlega *et al* (1981) discusses how gender alone does not explain the differences seen in self-disclosure patterns and that other variables such as the gender of the disclosure-recipient, marital status, social desirability and topic content all play an important role of the level of disclosures made.

It is suggested that the roles expected of men and women (masculinity and femininity) are responsible for the disclosure patterns typically reported in the literature (Derlega & Chaikin, 1976, Gaia, 2013) and indeed, this notion is supported by the work of Derlega *et al* (1981) who reported that men disclosed less than women on ‘feminine’ topics but did not differ on ‘neutral’ topics.

Attachment style also effects one’s willingness to disclose personal thoughts and feelings (Mikulincer & Nachson, 1991). In 1978, Ainsworth, Blehar, Waters, and Wall outlined three styles of attachment; ‘secure’, ‘anxious/ambivalent’, and ‘avoidant’ (Hazan and Shaver, 1987). Mikulincer and Nachson (1991) found that participants with secure and ambivalent attachment styles showed more self-disclosure than participants with an avoidant attachment style. It was also reported that

securely attached participants showed more ‘disclosure flexibility and topical reciprocity’ than ambivalent and avoidant participants.

In 1992, Solano *et al* reported that loneliness was significantly and linearly related to a self-perceived lack of intimate disclosure to friends and that lonely subjects had significantly different disclosure patterns than non-lonely subjects.

For some, dogs may be a preferred disclosure recipient, particularly for disclosures of a personal or secret nature (Hutton, 1985). In this context, the seminal finding of American child psychologist, Boris Levinson who found that his patients responded to therapy more positively when his dog, Jingles, was present (Wells, 2007) can be understood. Subsequent research has also found that the presence of a dog in a nursing home can greatly increase verbal interactions and socialisation among the residents (Fick, 1993), which may relate to greater disclosure.

For some people, self-disclosure can be an intimidating prospect (Cuming & Rapee, 2010) and in 1984, Hatfield described six potential ‘risks of intimacy’: (a) exposure, (b) abandonment, (c) fear of angry attacks, (d) fear of loss of control, (e) fear of one’s own destructive impulses and (f) fear of being engulfed. In reference to ‘fear of angry attacks’, or to put it another way, ‘fear of our vulnerabilities being used against us’ (Prager, 1998) whereby the concern is that disclosures may be repeated, judged, criticised, or belittled (Hatfield, 1984), such risk is eliminated when the disclosure is made to a dog instead of a human, potentially making dogs more valuable than humans in this regard.

For many owners, dogs are regarded as part of the family, with some owners even referring to themselves as their pets parent (Cohen, 2002, Knight & Edwards, 2008). In this respect, it is not surprising that many owners do talk to their dogs – perhaps not in the sense of disclosing problems or concerns, but simply interacting with the dog as though it understands what is being said. Indeed, Tannen (2004) describes how some family members “*use pets as resources to mediate their interactions*” with other family members and there is evidence to suggest that some people do feel as though their dog understands them and interact with their pets as though they were human (Archer, 1996, Cohen, 2002, Knight & Edwards, 2008). This anthropomorphism was also studied by Prato-Previde and colleagues in 2006, who investigated the extent to which male and female dog-owners talk to their dogs during their interactions with them. They found that women spent more time talking to their dogs and were more likely to talk to them as if they were young children. Although it is unlikely in this scenario that the talking included intimate disclosures, it does reflect a degree of anthropomorphism. Indeed, this tendency to talk to dogs as if they were children has been dubbed ‘doggerel’, akin to ‘motherese’ (Hirsh-Paseka1 & Treiman, 1982).

Owners who anthropomorphise their dogs receive higher levels of ‘social needs fulfilment’ than owners who do not (Shoda *et al*, 2011), and it has been postulated that dogs provide a source of social

support for their owners by providing “non-judgmental affection and companionship” (Allen *et al*, 1991, Archer, 1997, Siegel, 1993) and by facilitating social interactions (McNicholas & Collis, 2000). Intimacy relating to ability to self-disclose may play a key role in this context.

The work of Kurdek (2008, 2009) and Zilcha-Mano *et al* (2012) takes this concept of dogs providing social support and being regarded as a family member even further, with their research into the prospect of pet dogs fulfilling the role of an attachment figure for some owners. Their findings concluded that for some owners, their pet dogs do meet the four-factor criteria of an attachment figure, ie; 1) proximity maintenance – the attachment figure is accessible and being physically close with them is enjoyable 2) separation distress – being separated from the attachment figure is unpleasant 3) secure base – the attachment figure is dependable 4) safe haven – the attachment figure can be turned to for comfort in times of distress (Ainsworth, 1991, Kurdek, 2008, 2009, Zilcha-Mano, 2012).

Given the role that pet dogs play in providing social support and emotional comfort to their owners (Allen *et al*, 1991, Archer, 1996, Knight & Edwards, 2008, Wells, 2007, Zasloff, 1996) and the acknowledgement that owners do indeed talk to their dogs (Duvall Antonacopoulos & Pychyl, 2008, Dwyer, 2006, Wilson *et al*, 1987) it is surprising that no research into the benefits of self-disclosure to dogs has not been conducted before now.

Limitations of the papers in this review

The most common limitation of many of the papers in this review is the lack of mutual exclusivity of the independent variables. The nature of the dog-owner relationship in terms of the interactions shared is likely to be a key predictor of the benefits available to the owner and so in order to fully understand which interactions are beneficial, they should be studied independently of one another.

Another limitation of the papers in the review is the evidence level that they can be categorised at based on their study design, with nine of the papers in this review were classed as evidence level 6 since they were survey based. Survey based research is open to criticism given its hierarchical position in the pyramid of evidence; the design and methodology of such research does not always answer the research questions with the least amount of error or provide the most reliable findings (Melnik & Fineout-Overholt, 2005). Even those papers that were classed at a higher level of evidence were limited by their study design in that they were cross-sectional studies. Although useful in comparing dog-owners and non-dog-owners, the direction of the relationships found and any causal links can only be speculated at without the use of longitudinal studies.

Participants and the control groups used form another limitation of the papers in this review. The way in which participants were recruited was not specified in every paper (Baun & Bergstrom, 1984,

Grossberg & Vormbrock, 1988, Jenkins, 1986, Odendaal & Lehmann, 2000) and there is a possibility of biasing results as a result of where participants are recruited from. If only one method of recruitment is utilised (e.g. inviting owners from a dog training class) it is possible that the owners of this convenience sample will share similar characteristics and so it cannot be guaranteed that the sample is truly representative of the population (Jupp, 2006).

CONCLUSION

Although the nineteen papers reviewed in this systematic literature review provide evidence supporting the notion that dog-ownership and interacting with dogs is beneficial to human health, not one provided a meaningful definition of the term “owner”. Little evidence was found on the health benefits of intimacy within the dog-owner relationship, a key component of which is self-disclosure and this gap in the literature shall be addressed in the following chapters.

This review has highlighted the need for future research to work towards developing a framework with which the owner-dog relationship can be systematically characterised. By characterising the type of owners, dogs and relationships that are being studied and controlling for pre-determined characteristics, future research will be able to determine not only *which aspect* of the dog-owner relationship is causing which benefits, but also which types of dogs are most beneficial and which types of owners are benefitting most.

CHAPTER TWO

An Analysis of the Structure of Self-Disclosure to Dogs and Human Partners

This chapter describes a two-part study. The first part of the study ('Adaptation and validation of an existing self-disclosure scale for use with dogs') aimed to adapt an existing human self-disclosure scale for use with dogs and assess its validity. The second part of the study ('Analysis of dog-owners' disclosure patterns') explores the disclosure patterns of dog-owners. Data were harvested from one online survey in two batches, so that the second part of the study was an expansion of the first.

INTRODUCTION

The current literature on the benefits of dog-ownership is limited in that it is rarely able to definitively attribute one aspect of the owner-dog relationship to a specific benefit. The findings of the systematic literature review (Chapter 1) show how often this is the case, with many papers reporting that the interaction they investigated (such as petting) was the cause of the benefits seen without controlling for mere presence of the dog alone.

Within the literature on the reported health benefits of pet-ownership (such as reduced cardiovascular reactivity to stressors (Allen *et al*, 1991, Campo & Uchino, 2013), reduced loneliness (Zasloff & Kidd, 1994, Goldmeier, 1986), and a reduction in physician visits (Siegel, 1990)), researchers suggest that these benefits are a result of the 'non-evaluative social support' that owners receive from their companion animals (Allen *et al*, 1991) and that this support acts as a buffer against stress (Siegel, 1990). Where feelings of loneliness may exacerbate health problems, it is the companionship of a pet that is thought to defend against a decline in health and morale (Siegel, 1990, Goldmeier, 1986). Dog-owners in particular are considered to receive greater benefits than owners of other pets since they reportedly spend more time outdoors and talking to their pets (Siegel, 1990). Indeed, some dog-owners have explained that they talk to their dogs because it is a source of comfort and even describe them as therapists (Knight & Edwards, 2008).

There are many recorded health benefits of self-disclosure to other humans such as reduced stress (Prager, 1995), increased satisfaction with family life (Katz *et al*, 1963) and improvement in self-reported health (Pennebaker *et al*, 1989, Pennebaker & Beall, 1986, Greenberg & Stone, 1992), however no research currently exists on the potential health benefits of self-disclosure to dogs. As aforementioned, The Pet Attitude Inventory (Wilson *et al*, 1987) and the Monash Dog Owner Relationship Scale (Dwyer, 2006) recognise that there may be topics that dog-owners would rather share with their dog than other confidantes however, even these measures do not tease out *which*

topics owners' may prefer to confide in their dogs about, only whether or not they do and how often. If we do indeed discuss things with our pets that we do not discuss with others, this might indicate that pet-ownership is associated with some health benefits that we do not derive from other relationships.

Since there has been no research into the benefits of self-disclosure to pets, the aim of this chapter is to begin to fill this gap in our knowledge; first by validating an adaptation of a human self-disclosure scale and then using this to examine whether or not individuals differ in what they discuss with their human partner compared to their dog. As a further aim, we explore whether there are differences in disclosures made to dogs based on human gender. This information forms the basis of a further study (Chapter 3) examining the effect of self-disclosure to dogs on quality of life.

This project was approved by the relevant University ethical review committee (School of Life Sciences delegated authority).

METHODS 1 – ADAPTATION (AND VALIDATION) OF AN EXISTING SELF-DISCLOSURE SCALE FOR USE WITH DOGS

This study investigated whether dog-owners confide differently in their partners compared to their dogs and adapted an existing self-disclosure scale, The Emotional Self-Disclosure Scale (ESDS, Snell *et al*, 1988) for use with dogs. The original ESDS asks participants to rate on a 5 point Likert scale how willing they would be to discuss forty emotional items (Appendix 3) with (a) a female friend, (b) a male friend and (c) their spouse/lover. These forty items comprised eight subscales of emotional arousal, namely; (a) *Depression* (b) *Happiness* (c) *Jealousy* (d) *Anxiety* (e) *Anger* (f) *Calmness* (g) *Apathy* (h) *Fear*, with five items per subscale.

The ESDS was chosen for its excellent reliability (Snell *et al*, 1988) and also because its versatility meant that it could be used with different target persons, which might lend itself to further adaptation to include in this case, dogs. To adapt the ESDS for use with dogs, a small alteration to the original wording was made. Instead of asking the participants to indicate how willing they would be to *discuss* each item with their partner or dog, they were asked how willing they would be to *confide* in their partner or dog about each item. Since the main focus of the initial study was to determine whether an existing self-disclosure scale could be successfully adapted for use with dogs, 'willingness to confide in friends' was not included at this time, since these relationships are potentially more variable in both form (same gender versus cross gender relationships or reason for the friendship) and across time (relationship stability). The relationship with one's partner was preferred as a point of reference for human-human disclosure as it was hypothesised that this would provide less variation in the results. By asking participants to answer about their partner, they would typically be answering about a romantic relationship with someone, often of the opposite sex; if they had answered about

their closest confidante, this may have been someone of the same or opposite sex and provide a further source of variation.

Sexual orientation was determined in order to ensure that comparisons could be made; by asking participants to answer about their partner, we could compare the responses of willingness to confide to someone of the opposite sex. Had there been enough homosexual participants, these data would have been analysed too. Region of residence was included in the demographic questions so that it could be determined whether cultural origins impacted willingness to confide in either partner or dog with the use of Kruskal-Wallis tests.

The survey was piloted and posted on 'SurveyMonkey' (www.surveymonkey.com/s/self-disclosurewithdogs) from November 2013 to February 2014 (see Appendix 4 for survey). The survey was advertised through the use of social media, posters (Appendix 5) displayed in dog-groomers and boarding kennels and a press release to dog-oriented websites issued by the University of Lincoln press office. Respondents were asked to acknowledge that their participation in the survey was voluntary and confirm their eligibility; i.e. that they were over 18 years of age and had been in a relationship with the same partner and had owned the same dog, each for at least six months.

The responses were transcribed into an ordinal value from the original lettered Likert scale whereby, 1 = 'Not at all willing to confide in ____ about this topic' and 5 = 'Totally willing to confide in ____ about this topic' (Appendix 3). By totalling the scores of the five items within each emotional subscale, a total for each of the eight subscales was expressed (between 5 and 25), with higher scores corresponding with a greater willingness to confide in each disclosure recipient.

The version of the ESDS adapted for use with dogs will be known henceforth as The Self-Disclosure with Dogs Scale (SDwDS).

The following statistical analyses were carried out using SPSS version 19 for Windows PC. To ensure that the change in wording did not have a significant effect on the validity of the scale, Cronbach's alpha was performed on the eight emotional subscales. To further test the reliability of the SDwDS, the mean (and standard deviation) scores from the participants in this study (willingness to confide in their partners) were tested against the mean scores from participants in the original 1988 study (willingness to confide in their partners). A T-test was used to determine whether there were any significant differences between the two sets of participants and thus whether the change in wording had a meaningful effect on the response of subjects in relation to humans.

In order to determine test-retest reliability participants were asked whether or not they would be willing to retake the survey in eight weeks' time by providing their email address so that a link to a duplicate survey could be sent to them. Wilcoxon Matched Pairs and Spearman's Signed-Rank correlation was used to compare participants' original responses to their responses 8 weeks later.

RESULTS 1 – ADAPTATION (AND VALIDATION) OF AN EXISTING SELF-DISCLOSURE SCALE FOR USE WITH DOGS

Three-hundred-and-nine volunteers took part in the online survey; 250 heterosexual females, 9 homosexual females, 30 heterosexual males, 3 homosexual males, 17 gender undisclosed. 107 responses were disregarded due to being incomplete. Since the largest uniform sample was that of the heterosexual females ($n = 143$), the data from these participants was selected for analysis. See Appendix 6 for more information on the participants.

Table 7: Cronbach's alpha of the SDwDS compared to the original ESDS (Snell <i>et al</i>, 1988)				
	Current investigation, SDwDS ($n = 143$)		Original investigation, ESDS ($n = 79$)	
Subscale	Disclosure Recipient	α	Disclosure Recipient	α
Depression	Partner	0.92	Male friend	.83
	Dog	0.91	Female friend	.92
			Spouse	.91
Happiness	Partner	0.92	Male friend	.89
	Dog	0.92	Female friend	.87
			Spouse	.93
Jealousy	Partner	0.92	Male friend	.87
	Dog	0.91	Female friend	.89
			Spouse	.89
Anxiety	Partner	0.92	Male friend	.85
	Dog	0.91	Female friend	.88
			Spouse	.91
Anger	Partner	0.92	Male friend	.88
	Dog	0.92	Female friend	.87
			Spouse	.94
Calmness	Partner	0.92	Male friend	.85
	Dog	0.92	Female friend	.88
			Spouse	.86
Apathy	Partner	0.92	Male friend	.84
	Dog	0.92	Female friend	.88
			Spouse	.89
Fear	Partner	0.92	Male friend	.93
	Dog	0.92	Female friend	.90
			Spouse	.95

In order to determine internal reliability of the SDwDS, Cronbach's alpha was performed (Table 7). When compared to the Cronbach's alpha scores for the original ESDS, the results show that the SDwDS is an equally reliable tool for use in measuring willingness to confide in dogs as it is for measuring willingness to confide in human friends and partners, with the lowest score being 0.91.

To determine whether the change in wording had a significant effect on the participants' responses, a T-test was performed comparing the scores of 'willingness to confide in partner' from the females in the 1988 study and 'willingness to confide in partner' from the females in the current study. The results are shown in Table 8. There was no significant difference between the responses of the participants in the original study and participants in the current study, with the exception of Happiness ($p = 0.0334$) and Calmness ($p < 0.001$), whereby the females in the current study were more willing to confide in their partners than the females in the 1988 study.

Table 8: Females from Original Study vs Females from Current Study - Willingness to Confide in Partner			
Mean (\pm SD) and T-Test, $p = 0.0625$ for significance (Bonferroni correction)			
Subscale	Mean \pm SD (current females, $n = 143$)	Mean \pm SD (original females, $n = 37$)	p value
Depression	19.734 (\pm 4.40)	21.19 (\pm 4.27)	0.0728
Happiness	23.79 (\pm 2.56)	22.57 (\pm 4.67)	0.0334
Jealousy	17.224 (\pm 4.97)	18.32 (\pm 5.03)	0.2347
Anxiety	20.08 (\pm 4.17)	20.19 (\pm 4.62)	0.8859
Anger	19.77 (\pm 4.34)	21.32 (\pm 4.50)	0.0552
Calmness	21.76 (\pm 4.12)	17.27 (\pm 4.32)	<0.001
Apathy	17.15 (\pm 5.21)	17.38 (\pm 4.75)	0.8055
Fear	21.20 (\pm 4.18)	21.78 (\pm 4.13)	0.4488

Table 9 shows the results of the Wilcoxon Matched Pairs and Spearman's Signed-Rank correlation that were used to assess test retest reliability. The results show that the participants' responses did remain consistent over the eight week period in all emotional subscales and for both partner and dog.

Table 9: Test Retest Reliability - Original SDwDS Responses vs Responses Eight Weeks Later, Wilcoxon Matched Pairs and Spearman's Signed-Rank Correlation, $n = 21$ $p = 0.00625$ for significance (Bonferroni correction)				
Subscale	Disclosure Recipient	Wilcoxon Matched Pairs	Spearman's Signed-Rank	
			ρ value	p value
Depression	Partner	0.012	0.853	<0.001
	Dog	0.030	0.816	<0.001
Happiness	Partner	0.011	0.668	0.001
	Dog	0.075	0.544	0.011
Jealousy	Partner	0.264	0.916	<0.001
	Dog	0.161	0.860	<0.001
Anxiety	Partner	0.012	0.828	<0.001
	Dog	0.203	0.868	<0.001
Anger	Partner	0.203	0.753	<0.001

	Dog	0.052	0.765	<0.001
Calmness	Partner	0.806	0.770	<0.001
	Dog	0.623	0.785	<0.001
Apathy	Partner	0.601	0.812	<0.001
	Dog	0.824	0.953	<0.001
Fear	Partner	0.054	0.874	<0.001
	Dog	0.777	0.808	<0.001

METHODS 2 – ANALYSIS OF DOG-OWNERS’ DISCLOSURE PATTERNS

Following validation of the questionnaire, the online survey remained active until the second data collection in September 2014. At this time, data from 575 participants were analysed and reduced to a sample of 306 heterosexual dog-owners (232 female and 74 male). The excluded data consisted of 259 incomplete responses and 10 homosexual dog-owners. Initially a comparison between heterosexual and homosexual dog-owners was intended, but was not possible due to the small sample size of homosexual dog-owners. See Appendix 7 for more information on the participants.

The following statistical analyses were carried out using SPSS version 21 for Windows PC. In order to determine whether or not the data were normally distributed, and thus determine whether parametric or nonparametric statistical analyses should be used, a Kolmogorov-Smirnov test was performed on each of the eight subscales, for responses for both ‘partner’ and ‘dog’.

In order to gauge the range of responses in willingness to confide about the different emotional topics to partner versus dog, the mean, standard deviation (SD), median and interquartile range of scores were initially inspected.

In order to determine whether there was a significant difference between disclosure patterns of dog-owners towards their partner versus their dog, a Wilcoxon Matched Pairs test was performed separately for male and female dog-owners.

To determine whether the length of time that the participants had been in a relationship with their partner would affect willingness to confide in their partner, a Kruskal-Wallis test was performed for each of the eight subscales, with the dependent variables being each separate subscale. Similarly, in order to determine whether length of time that the participants had owned their dog would affect willingness to confide in their dog, Kruskal-Wallis tests were again used. The effect that the participants age, region of residence and gender of dog had on willingness to confide in partner and dog were also tested using Kruskal-Wallis, along with whether length of relationship with partner affected willingness to confide in dog, and whether length of dog-ownership effected willingness to confide in partner. In order to determine whether dog-owner gender would affect these results, the

male ($n = 74$) and female ($n = 232$) samples were treated as separate samples. Table 10 shows the grouping variables and the similarly sized groups they were categorised into.

Table 10: Categorisation of Grouping Variables used in Kruskal-Wallis Tests (Effect of Each Grouping Variable on Willingness to Confide in Partner / Dog)		
Grouping variable	Categories, male sample ($n = 74$)	Categories, female sample ($n = 232$)
Length of Relationship	<ol style="list-style-type: none"> 1. 6 months – 5 years 2. 6 -15 years 3. 16+ years 	<ol style="list-style-type: none"> 1. 6 months – 5 years 2. 6 – 10 years 3. 11-20 years 4. 21+ years
Length of Ownership	<ol style="list-style-type: none"> 1. 6 months – 5 years 2. 6+ years 	<ol style="list-style-type: none"> 1. Less than 1 year 2. 1-5 years 3. 6-10years 4. 11+ years
Age	<ol style="list-style-type: none"> 1. 16-25 2. 36-45 3. 46-75 	<ol style="list-style-type: none"> 1. 16-25 2. 26-35 3. 36-45 4. 46+
Region	<ol style="list-style-type: none"> 1. Europe 2. North America 3. South America 4. USA 5. Did not answer 	<ol style="list-style-type: none"> 1. Africa 2. Europe 3. North America 4. Oceania 5. South America 6. USA 7. Did not answer
Dog Gender	<ol style="list-style-type: none"> 1. Male, entire 2. Male, neutered 3. Female, entire 4. Female, spayed 	<ol style="list-style-type: none"> 1. Male, entire 2. Male, neutered 3. Female, entire 4. Female, spayed

In order to ascertain whether there was a significant correlation between the participants' willingness to confide in their partner and willingness to confide in their dog, a Spearman's Signed-Rank correlation was performed for each subscale.

In order to examine if there were differences in the structure of the participants' disclosure patterns to their partner versus their dog, a Principal Component Analysis (PCA) with a Varimax rotation was performed. This shows which items of the SDwDS go together based on the pattern of responses from participants. The PCA reveals new separate 'factors'. For interpretive purposes, items with correlation loadings on factors below 0.5 were ignored. Although the items within these factors may originate from various subscales of the SDwDS, the fact that the participants answered about them in a similar way suggests that the participants treated them as though they belong to a common theme. PCAs were conducted separately for male and female participants and for the partner and dog data.

In order to analyse the effect of gender on disclosure patterns to partners versus dogs, a ‘difference score’ was calculated and analysed. This meant that each participant had one score representing the difference in how willing they were to confide in their partner and their dog instead of two separate scores (one value for willingness to confide in dog and one value for willingness to confide in partner).

The ‘difference score’ was calculated by taking the scores from the SDwDS (range of 5 to 25) and subtracting ‘willingness to confide in dog’ from ‘willingness to confide in partner’. The potential range of scores was from -20 to +20, with negative scores indicating a preference to confide in one’s dog and positive scores indicating a preference to confide in one’s partner.

e.g. willingness to confide in partner (10) – willingness to confide in dog (20) = -10

willingness to confide in partner (15) – willingness to confide in dog (10) = 5

willingness to confide in partner (20) – willingness to confide in dog (20) = 0

Following this, in order to examine the underlying structure of the differences in confiding in a partner versus dog, PCAs of the difference scores of the SDwDS were undertaken separately for male and female respondents.

Finally, in order to determine which items of the SDwDS were the best predictors of gender (as a result of showing the greatest differences between male and female participants) a Discriminant Function Analysis (DFA) was performed, using the ‘difference scores’.

RESULTS 2 – ANALYSIS OF DOG-OWNERS’ DISCLOSURE PATTERNS

In order to determine whether or not the data were normally distributed, a Kolmogorov-Smirnov test was performed on each of the eight subscales, for responses to both ‘partner’ and ‘dog’. Since two of the results did not significantly differ from a normal distribution (Jealousy, Partner $p > 0.15$ and Apathy, Partner, $p > 0.15$), non-parametric tests were used for the following analyses. Since eight analyses were conducted due to the number of subscales, the significance threshold was adjusted accordingly with a Bonferroni correction ($0.05/8 = p < 0.00625$, unless otherwise stated).

Table 11 summarises the descriptive statistics of the male ($n = 74$) and female ($n = 232$) participants. The sample size for males was less than hoped and while this may question the reliability of subsequent analyses such as the PCA, they are presented here for comparative purposes. Nonetheless the results for males should be treated with caution. The results indicate that there is little variation in the male participants’ willingness to confide in both their partners and their dogs. The two topics that the male dog-owners were most willing to discuss in general were *Happiness* and *Calmness*.

This table also shows that female dog-owners are generally more willing to confide in both their partner and dog about all eight emotional subscales than male dog-owners.

Table 11: Descriptive Statistics of Male ($n = 74$) and Female ($n = 232$) samples
Willingness to Confide in Partner vs Dog (5 = Not at all willing, 25= Totally willing)

		Male Sample				Female Sample			
Subscale	Disclosure Recipient	Mean (\pm SD)	First Quartile	Median	Third Quartile	Mean (\pm SD)	First Quartile	Median	Third Quartile
Depression	Partner	15.15 (6.063)	10	15	20	19.34 (4.644)	16	20	24
	Dog	15.26 (7.449)	7	16	21.25	20.59 (5.777)	18	23	25
Happiness	Partner	20.22 (5.372)	18	21	25	23.59 (3.202)	24	25	25
	Dog	18.76 (7.176)	14.50	21.50	25	23.46 (3.822)	24	25	25
Jealousy	Partner	13.72 (6.197)	7.75	13.50	18	17.08 (5.029)	14	17	21
	Dog	13.97 (7.419)	6	14.50	20	18.92 (6.633)	14	21	25
Anxiety	Partner	15.24 (5.949)	11	15	20	19.83 (4.377)	17	20	24
	Dog	14.64 (7.462)	6	14.50	21	19.57 (6.151)	16	21	25
Anger	Partner	15.03 (6.292)	10	15	20	19.55 (4.482)	16.25	20	24
	Dog	13.68 (7.362)	6	12	20	16.63 (7.330)	10	17.50	25
Calmness	Partner	17.42 (5.982)	14	18	23	21.72 (4.330)	20	23	25
	Dog	16.66 (7.796)	8	20	25	22.13 (5.010)	21.25	25	25
Apathy	Partner	13.58 (6.666)	8	13	18.25	17.31 (5.236)	14	18	21
	Dog	13.70 (7.507)	5	13	20	18.56 (6.690)	13.25	21	25
Fear	Partner	14.27 (6.730)	8.75	14	20	20.79 (4.556)	18	22	25
	Dog	13.73 (7.769)	5	12.50	21.25	18.56 (7.328)	12.25	22	25

Table 12 shows that heterosexual female dog-owners would rather confide in their partner about feelings of *Anger* ($p < 0.001$) and *Fear* ($p < 0.001$). It appears that they would also rather confide in their dog about feelings of *Depression* ($p < 0.001$), *Jealousy* ($p < 0.001$), *Calmness* ($p < 0.001$) and *Apathy* ($p < 0.001$). These results also show that heterosexual male dog-owners show no preference in disclosure recipient in any of the eight given emotional categories.

Table 12: Dog-Owners' Willingness to Confide in their Partner vs Dog Wilcoxon Matched Pairs, $p = 0.00625$, for significance (Bonferroni correction)		
Subscale	p value	
	Males ($n = 74$)	Females ($n = 232$)
Depression	.740 ^D	<0.001 ^D
Happiness	.012 ^P	.952 ^D
Jealousy	.688 ^D	<0.001 ^D
Anxiety	.504 ^P	.925 ^D
Anger	.186 ^P	<0.001 ^P
Calmness	.361 ^P	<0.001 ^D
Apathy	.592 ^D	<0.001 ^D
Fear	.587 ^P	<0.001 ^P
^P in favour of partner ^D in favour of dog		

Length of relationship with partner has no significant effect on willingness to confide in partners and length of dog-ownership has no significant effect willingness to confide in dogs (Table 13, Kruskal-Wallis). This was true for both male and female dog-owners.

Table 13: Effect of Length of Relationship with Partner on Willingness to Confide in Partner and Effect of Length of Dog-Ownership on Willingness to Confide in Dog Kruskal-Wallis, $p = 0.00625$ for significance (Bonferroni correction)			
Subscale	Disclosure Recipient	p value Female Sample ($n = 232$)	p value Male Sample ($n = 74$)
Depression	Partner	.212	.231
	Dog	.035	.823
Happiness	Partner	.223	.026
	Dog	.131	.581
Jealousy	Partner	.043	.395
	Dog	.094	.686
Anxiety	Partner	.067	.255
	Dog	.144	.672
Anger	Partner	.482	.520
	Dog	.324	.677
Calmness	Partner	.236	.104
	Dog	.254	.813

Apathy	Partner	.497	.221
	Dog	.072	.698
Fear	Partner	.264	.091
	Dog	.320	.416

Participants' age, usual country of residence and gender of had no significant effect on willingness to confide in either partner or dog. Length of dog-ownership was also tested against willingness to confide in partner and length of relationship with partner was also tested against willingness to confide in dog, the reason being that if a participant had owned their dog longer than they had been in their current relationship then they may be more inclined to confide in their dog. This hypothesis was not supported as none of the relationships between length of relationship / ownership and willingness to confide in dog / partner were significant. For values of these non-significant Kruskal-Wallis tests, see Appendices 8a-8e.

Participants' willingness to confide in their partner is significantly correlated with their willingness to confide in their dog, with the exception of *Anger* (and borderline *Fear*) for female participants (Table 14).

Table 14: Correlation Between Willingness to Confide in Partner vs Dog				
Spearman's Signed-Rank Correlation, $p = 0.00625$ for significance (Bonferroni correction)				
	Male Sample ($n = 74$)		Female Sample ($n = 232$)	
Subscale	<i>rho</i> value	<i>p</i> value	<i>rho</i> value	<i>p</i> value
Depression	.613	<0.001	.187	0.004
Happiness	.746	<0.001	.506	<0.001
Jealousy	.625	<0.001	.220	0.001
Anxiety	.584	<0.001	.225	0.001
Anger	.560	<0.001	.083	0.206
Calmness	.773	<0.001	.585	<0.001
Apathy	.718	<0.001	.419	<0.001
Fear	.635	<0.001	.179	0.006

Tables 15 and 16 show the results of the Principal Component Analysis performed on the data from female participants ($n = 232$) for 'willingness to confide in partner' and 'willingness to confide in dog' respectively. The data for male participants ($n = 74$) is shown in Tables 17 and 18 for 'willingness to confide in partner' and 'willingness to confide in dog' respectively. For scree plots of the analyses see Appendices 9a-d.

Table 15: Female Sample – Willingness to Confide in Partner Data					
PCA, Varimax Rotation, $n = 232$					
Item	Subscale	Component			
		1	2	3	4
		‘Nervous’	‘Positive’	‘Disconnected’	‘Jealous’
Frightened	Fear	.760			
Scared	Fear	.760			
Irritated	Anger	.747			
Uneasy	Anxiety	.720			
Infuriated	Anger	.717			
Sad	Depression	.700			
Afraid	Fear	.747			
Fearful	Fear	.720			
Alarmed	Fear	.717			
Enraged	Anger	.666			
Angry	Anger	.649			
Unhappy	Depression	.646			
Worried	Anxiety	.616			
Troubled	Anxiety	.607			
Anxious	Anxiety	.584			
Discouraged	Depression	.581			
Suspicious	Jealousy	.563			
Pessimistic	Depression	.535			
Depressed	Depression				
Joyous	Happiness		.825		
Delighted	Happiness		.825		
Cheerful	Happiness		.822		
Pleased	Happiness		.803		
Tranquil	Calmness		.773		
Calm	Calmness		.770		
Relaxed	Calmness		.755		
Serene	Calmness		.754		
Happy	Happiness		.737		
Unfeeling	Apathy			.732	
Detached	Apathy			.731	
Numb	Apathy			.728	
Resentful	Jealousy			.668	
Indifferent	Apathy			.652	
Hostile	Anger	.564		.600	
Flustered	Anxiety			.578	
Quiet	Calmness			.574	
Apathetic	Apathy				
Jealous	Jealousy				.607
Envious	Jealousy			.537	.590
Possessive	Jealousy				.583

Table 15 shows that four factors emerge from the female, ‘willingness to confide in partner’ data. The first factor comprises negative emotions from the *Fear*, *Anger*, *Anxiety*, *Depression* subscales and one item from the *Jealousy* subscale. The second factor to emerge can be described as a positive factor as it is made up of almost all of the items (bar one, ‘*Quiet*’) from the *Happiness* and *Calmness* subscales. The third factor contains items from the *Apathy* subscale plus one item from each of the *Jealousy*, *Anger*, *Anxiety* and *Calmness* subscales. The fourth factor consists entirely of items from the *Jealousy* subscale. As shown in Table 15, the ‘*Depressed*’ and ‘*Apathetic*’ items did not score higher than 0.5 on any factor, although they would have loaded highest on the first and third factors respectively with values of 0.499 and 0.413. From this structure, these factors can be loosely classified as: (1) Nervous (2) Positive (3) Disconnected and (4) Jealous.

Table 16 shows how four similar factors are developed from the female, ‘willingness to confide in dog’ data. Factor 1 includes all five items from the *Anxiety* subscale along with four out of five items from the *Fear* subscale and two items from the *Depression* subscale. Factor 2 is made up of all of the items from the *Happiness* and *Calmness* subscales. Factor 3 contains items from the *Apathy*, *Jealousy* and *Depression* subscales and Factor 4 consists of all of the items from the *Anger* subscale plus one item from the *Anxiety* subscale and one item from the *Jealousy* subscale. From this structure, these factors can be loosely classified as: (1) Anxious (2) Content (3) Contentious and (4) Tense.

Table 16: Female Sample – Willingness to Confide in Dog Data PCA, Varimax Rotation, $n = 232$					
Item	Subscale	Component			
		1 ‘Anxious’	2 ‘Content’	3 ‘Contentious’	4 ‘Tense’
Afraid	Fear	.816			
Fearful	Fear	.789			
Frightened	Fear	.786			
Scared	Fear	.775			
Worried	Anxiety	.775			
Anxious	Anxiety	.649			
Uneasy	Anxiety	.628			
Discouraged	Anxiety	.625		.539	
Troubled	Anxiety	.619		.548	
Pessimistic	Depression	.563		.518	
Sad	Depression	.563		.554	
Delighted	Happiness		.908		
Cheerful	Happiness		.861		
Joyous	Happiness		.857		
Happy	Happiness		.824		
Pleased	Happiness		.823		
Relaxed	Calmness		.788		
Tranquil	Calmness		.786		

Calm	Calmness		.781		
Serene	Calmness		.761		
Quiet	Calmness		.568		
Indifferent	Apathy		.353	.719	
Apathetic	Apathy			.705	
Numb	Apathy			.665	
Detached	Apathy			.659	
Jealous	Jealousy			.619	
Possessive	Jealousy			.611	
Depressed	Depression			.610	
Unfeeling	Apathy			.600	.542
Envious	Jealousy			.596	
Unhappy	Depression			.543	
Suspicious	Jealousy			.515	
Enraged	Anger				.836
Hostile	Anger				.811
Infuriated	Anger				.751
Angry	Anger				.698
Irritated	Anger				.676
Alarmed	Fear	.570			.602
Flustered	Anxiety				.583
Resentful	Jealousy			.517	.568

Table 17 shows four factors that emerged from the male, ‘willingness to confide in partner’ data. The first factor can be described as a negative factor since it consists of items from the *Fear*, *Depression*, *Jealousy*, *Anxiety*, *Anger*, *Apathy* subscales. The second factor is made up of almost all of the items (bar one, ‘*Quiet*’) from the *Happiness* and *Calmness* subscales. The third factor contains one item from each of the *Apathy*, *Jealousy* and *Calmness* subscales whilst the fourth factor contains two items from the *Anger* subscale plus one item from each of *Depression* and *Anxiety* subscales. In this dataset, the ‘*Irritated*’ item did not score higher than 0.5 on any factor although it would have loaded highest in the fourth factor, with a value of 0.496. From this structure, these factors can be loosely classified as: (1) Negative (2) Positive (3) Sullen and (4) Agitated.

Table 17: Male Sample – Willingness to Confide in Partner Data					
PCA, Varimax Rotation, $n = 74$					
Item	Subscale	Component			
		1	2	3	4
		‘Negative’	‘Positive’	‘Sullen’	‘Agitated’
Scared	Fear	.915			
Afraid	Fear	.881			
Unhappy	Depression	.811			
Fearful	Fear	.808			
Frightened	Fear	.798			
Alarmed	Fear	.777			
Resentful	Jealousy	.771			
Sad	Depression	.751			
Uneasy	Anxiety	.738			
Troubled	Anxiety	.729			
Enraged	Angry	.722			
Detached	Apathy	.700			
Pessimistic	Depression	.678			
Discouraged	Depression	.654			
Suspicious	Jealousy	.648			
Hostile	Anger	.648		.543	
Worried	Anxiety	.647			
Unfeeling	Apathy	.637		.564	
Numb	Apathy	.637		.567	
Flustered	Anxiety	.601		.525	
Jealous	Jealousy	.577			
Apathetic	Apathy	.538			
Envious	Jealousy	.529			
Happy	Happiness		.854		
Delighted	Happiness		.853		
Joyous	Happiness		.853		
Cheerful	Happiness		.846		
Pleased	Happiness		.815		
Calm	Calmness		.812		
Relaxed	Calmness		.805		
Tranquil	Calmness		.752		
Serene	Calmness		.742		
Indifferent	Apathy	.567		.663	
Possessive	Jealousy	.541		.621	
Quiet	Calmness			.535	
Angry	Anger				.747
Infuriated	Anger				.623
Depressed	Depression				.59
Anxious	Anxiety	.504			.584
Irritated	Anger				

Table 18 shows the three factors that emerged from the male, ‘willingness to confide in dog’ data.

Table 18: Male Sample – Willingness to Confide in Dog				
PCA, Varimax Rotation, $n = 74$				
Item	Subscale	Component		
		1	2	3
		‘Worried’	‘Mostly Positive’	‘Hostile’
Numb	Apathy	.779		
Afraid	Fear	.772		
Scared	Fear	.754		
Resentful	Jealousy	.732		
Discouraged	Depression	.724		
Frightened	Fear	.714		.530
Uneasy	Anxiety	.702		
Detached	Apathy	.697		
Flustered	Anxiety	.692		
Alarmed	Fear	.692		.532
Fearful	Fear	.688		
Jealous	Jealousy	.681	.518	
Suspicious	Jealousy	.678		
Indifferent	Apathy	.671		
Depressed	Depression	.666	.577	
Possessive	Jealousy	.662		
Unfeeling	Apathy	.659		
Envious	Jealousy	.647		.573
Worried	Anxiety	.643		.511
Anxious	Anxiety	.643		
Relaxed	Calmness		.885	
Calm	Calmness		.880	
Delighted	Happiness		.877	
Happy	Happiness		.875	
Cheerful	Happiness		.866	
Pleased	Happiness		.855	
Tranquil	Calmness		.833	
Joyous	Happiness		.819	
Serene	Calmness		.795	
Quiet	Calmness	.560	.679	
Apathetic	Apathy	.579	.588	
Sad	Depression		.551	.523
Infuriated	Anger			.843
Angry	Anger			.782
Enraged	Anger	.554		.692
Hostile	Anger	.595		.684
Pessimistic	Depression			.657
Irritated	Anger			.640
Troubled	Anxiety	.507		.633
Unhappy	Depression			.605

Factor 1 contains negative items from the *Apathy*, *Fear*, *Jealousy*, *Depression* and *Anxiety* subscales. Factor 2 is surprising as it includes all of the items from the *Happiness* and *Calmness* subscales, but also with one item from both the *Apathy* and *Depression* subscales. Factor 3 contains all of the items from the *Anger* subscale along with items from the *Depression* subscale and one item from the *Anxiety* subscale. From this structure, these factors can be loosely classified as: (1) Worried (2) Mostly Positive and (3) Hostile.

Tables 19 and 20 show the results of the Principal Component Analysis, with a Varimax rotation, performed on the difference scores from the female ($n = 232$) and male ($n = 74$) samples respectively. For scree plots of the analyses, see Appendices 10a-b.

Table 19 shows the four factors from the female difference score data. The first factor is made up of items from the *Jealousy*, *Apathy* and *Depression* subscales and one item from the *Anxiety* subscale. The second factor comprised all of the items from the *Happiness* and *Calmness* subscales. The third factor contains items from the *Fear* and *Anxiety* subscales whilst the final factor consists entirely of items from the *Anger* subscale. In this dataset, the ‘*Flustered*’ item did not score higher than 0.5 on any factor, although it would have loaded greatest on the fourth factor with a value of 0.484. From this structure, these factors can be loosely classified as: (1) Insecure/Depressed (2) Content (3) Fearful-Anxiety and (4) Anger.

Table 19: Female Sample – Difference Scores PCA, Varimax Rotation, $n = 232$					
Item	Subscale	Component			
		1 ‘Insecure/Depressed’	2 ‘Content’	3 ‘Fearful-Anxiety’	4 ‘Anger’
Envious	Jealousy	.731			
Possessive	Jealousy	.718			
Numb	Apathy	.715			
Detached	Apathy	.704			
Unfeeling	Apathy	.674			
Jealous	Jealousy	.672			
Unhappy	Depression	.659			
Apathy	Apathy	.656			
Sad	Depression	.654			
Resentful	Jealousy	.650			
Pessimistic	Depression	.637			
Indifferent	Apathy	.627			
Depressed	Depression	.620			
Troubled	Anxiety	.610			
Discouraged	Depression	.598		.548	
Suspicious	Jealousy	.570			

Delighted	Happiness		.896		
Joyous	Happiness		.875		
Cheerful	Happiness		.873		
Relaxed	Calmness		.830		
Pleased	Happiness		.827		
Happy	Happiness		.815		
Tranquil	Calmness		.815		
Calm	Calmness		.788		
Serene	Calmness		.766		
Quiet	Calmness		.544		
Fearful	Fear			.801	
Frightened	Fear			.796	
Afraid	Fear			.783	
Scared	Fear			.769	
Worried	Anxiety			.685	
Alarmed	Fear			.596	.518
Uneasy	Anxiety			.590	
Anxious	Anxiety			.561	
Enraged	Anger				.783
Infuriated	Anger				.781
Angry	Anger				.771
Hostile	Anger				.705
Irritated	Anger				.697
Flustered	Anxiety				

The male difference score data shown in Table 20 provides a very different structure, with five factors now emerging. Factor 1 contains all of the items from the *Happiness* and *Calmness* subscales. Factor 2 consists of all of the *Fear* items along with items from the *Apathy*, *Anxiety*, *Depression* and *Jealousy* subscales. Factor 3 is made up of almost equal parts *Anger*, *Anxiety*, *Jealousy* and *Depression* whilst factor 4 is made up of items from the *Anxiety*, *Apathy* and *Anger* subscales. Factor 5 contains items from the *Depression*, *Jealousy* and *Anxiety* subscales. The ‘*Troubled*’ item did not score higher than 0.5 on any factor, although it loaded highest in the third factor with a value of 0.496. From this structure, these factors could be categorised as: (1) Content (2) Fearful (3) Resentful (4) Unsettled and (5) Insecure.

Table 20: Male Sample Difference Scores PCA, Varimax Rotation, $n = 74$						
Item	Subscale	Component				
		1 'Content'	2 'Fearful'	3 'Resentful'	4 'Unsettled'	5 'Insecure'
Joyous	Happiness	.845				
Happy	Happiness	.816				
Relaxed	Calmness	.804				
Cheerful	Happiness	.790				
Delighted	Happiness	.776				
Pleased	Happiness	.771				
Serene	Calmness	.748				
Calm	Calmness	.743				
Tranquil	Calmness	.674				
Quiet	Calmness	.522				
Scared	Fear		.854			
Frightened	Fear		.852			
Fearful	Fear		.761			
Afraid	Fear		.759			
Alarmed	Fear		.713			
Uneasy	Anxiety		.626			
Detached	Apathy		.557			
Pessimistic	Depression		.555	.529		
Infuriated	Anger			.780		
Angry	Anger			.691		
Irritated	Anger			.675		
Worried	Anxiety			.671		
Resentful	Jealousy		.526	.601		
Sad	Depression			.594		
Unhappy	Depression		.519	.578		
Envious	Jealousy			.545		
Troubled	Anxiety					
Indifferent	Apathy				.645	
Hostile	Anger				.607	
Apathy	Apathy				.598	
Flustered	Anxiety				.573	
Numb	Apathy				.531	
Enraged	Anger				.500	
Depressed	Depression					.709
Jealous	Jealousy					.645
Anxious	Anxiety					.597
Discouraged	Depression					.574
Possessive	Jealousy					.532

Table 21 shows the descriptive statistics of willingness to confide in partner and dog for the new factors that emerged from the PCA (Tables 15 – 18), of both male and female participants. These factors consist of items from various subscales of the SDwDS, rather than the original eight-subscale structure of the SDwDS. This table shows how different factors emerged for the partner and dog data, suggesting that there are items on the SDwDS that the participants treat differently depending on the disclosure recipient.

Table 21: Descriptive Statistics of Male (<i>n</i> = 74) and Female (<i>n</i> = 232) Sample								
Willingness to Confide in Partner about the Principal Components of the SDwDS								
Willingness to Confide in Dog about the Principal Components of the SDwDS								
(1 = Not at all willing, 2 = Slightly willing, 3 = Moderately willing, 4 = Almost totally willing, 5 = Totally willing)								
Female Sample					Male Sample			
Willingness to Confide in Partner Components								
	1 ‘Nervous’	2 ‘Positive’	3 ‘Disconnected’	4 ‘Jealous’	1 ‘Negative’	2 ‘Positive’	3 ‘Sullen’	4 ‘Agitated’
Mean (±SD)	4 .850	4.61 .702	3.52 1.003	3.32 1.091	2.84 1.233	3.86 1.099	2.84 1.352	3.21 1.168
First Quartile	3.44	4.56	2.88	2.33	1.78	3.22	1.33	2.25
Median	4.08	5	3.63	3.33	2.67	4.00	3.00	3.13
Third Quartile	4.71	5.00	4.25	4.00	3.84	4.92	4.00	4.25
Willingness to Confide in Dog Components								
	1 ‘Anxious’	2 ‘Content’	3 ‘Contentious’	4 ‘Tense’	1 ‘Worried’	2 ‘Mostly Positive’	3 ‘Hostile’	
Mean (±SD)	3.91 1.270	4.56 .839	3.85 1.227	3.42 1.398	2.82 1.466	3.47 1.444	2.79 1.456	
First Quartile	3.18	4.53	3.00	2.14	1.23	2.15	1.25	
Median	4.45	5.00	4.27	3.50	2.83	4.00	2.69	
Third Quartile	5.00	5.00	4.91	5.00	4.00	4.83	4.00	

Table 22 shows the average difference score (willingness to confide in partner – willingness to confide in dog) for each of the new factors to emerge from the PCA (Tables 19 and 20). The closer a difference score is to 0, the less difference there is in willingness to confide in partner and dog. The difference scores alone do not tell us how willing the participants were to discuss this factor, only how much difference there is between their willingness to confide in their partner and dog. In order to show how willing the participants were to confide about each new factor, this table also includes the average score of willingness to confide in partner and dog for each new factor, generated from the original scores of each item within that factor.

Table 22: Willingness to Confide in Partner and Dog about the Factors Revealed by the PCA									
Descriptive Statistics and Wilcoxon Matched Pairs of Male (<i>n</i> = 74) and Female (<i>n</i> = 232) Sample, <i>p</i> = 0.0625 for significance (Bonferroni correction)									
Female Sample					Male Sample				
Difference Score of PCA Components (Willingness to confide in partner – Willingness to confide in dog)									
	1 ‘Insecure/ Depressed’	2 ‘Content’	3 ‘Fearful – Anxiety’	4 ‘Anger’	1 ‘Content’	2 ‘Fearful’	3 ‘Resentful’	4 ‘Unsettled’	5 ‘Insecure’
Mean (±SD)	-.28 (1.319)	-.03 (.801)	.32 (1.513)	.58 (1.657)	.22 (.925)	.07 (1.205)	.10 (1.306)	.16 (1.129)	-.07 (1.234)
First Quartile	-1.06	-.10	-.59	-.55	-.20	-.50	-.88	-.17	-1.00
Median	-.38	.00	.00	.20	.00	.00	.00	.00	.00
Third Quartile	.25	.00	1.25	1.80	.70	.70	.66	.33	.60
Average (original) Score of PCA Components (1 = Not at all willing, 5 = Totally willing)									
Mean Score Partner (±SD)	3.61 (.910)	4.531 (.709)	4.106 (.858)	3.91 (.896)	3.76 (1.091)	2.81 (1.287)	3.02 (1.210)	2.81 (1.323)	2.99 (1.127)
Mean Score Dog (±SD)	3.89 (1.201)	4.559 (.839)	3.782 (1.373)	3.326 (1.466)	3.54 (1.467)	2.74 (1.498)	2.92 (1.464)	2.65 (1.471)	3.05 (1.511)
Wilcoxon Matched Pairs (willingness to confide in partner * willingness to confide in dog)									
<i>p</i> value	<0.001 ^D	0.021 ^D	0.017 ^P	<0.001 ^P	.114	.609	.847	.417	.634
^P in favour of partner ^D in favour of dog									

In order to determine which items of the SDwDS were the best predictors of gender (as a result of showing the greatest differences between male and female participants), a Discriminant Function Analysis (DFA) was performed. The DFA revealed that of the 40 items on the SDwDS, five items contributed most to the discrimination between the two genders. These items were: *Happy* ($p = 0.002$), *Infuriated* ($p < 0.001$), *Possessive* ($p < 0.001$), *Scared* ($p < 0.001$) and *Worried* ($p < 0.001$). These results show that a model using these five predictors is a good fit for the data from the SDwDS. The results of the DFA show that dog-owners' genders could be correctly predicted based on their responses to the SDwDS alone, 65% of the time (75.7% for males and 61.6% for females) and that the above mentioned items were the most useful for differentiating male and female dog-owners.

DISCUSSION

The wording of the questions on the ESDS was changed from 'discuss' to 'confide' because 'discuss' implies that a discussion will be had about the topic and this is not possible when the disclosure recipient is a dog. The results show this adaptation for use with dogs was successful since the change in wording did not affect its validity and the results gained from the online survey were robust.

The initial data collection yielded a small proportion of male dog-owners ($n = 30$) compared to female owners ($n = 143$) so that gender differences could not be analysed in the first instance. However, after expanding the study the male dataset increased sufficiently to allow for gender comparisons. The number of female participants outweighing male participants is not uncommonly seen in this field of research (as discussed in Chapter 1) however, the nature of this particular study may be responsible for the small number of male participants. It is possible that the use of the word 'confide' may have been off-putting to some male dog-owners since it has connotations of secrecy and concealed thoughts and feelings that perhaps the male population did not feel that they could relate to.

The analysis of the gender differences in disclosure patterns revealed that heterosexual male dog-owners do not differ significantly in their willingness to confide in their partner versus their dog about feelings of *Depression*, *Happiness*, *Jealousy*, *Anxiety*, *Anger*, *Calmness*, *Apathy* and *Fear*. The only emotional subscale that displayed an approach toward a significant difference (in favour of their partner) was *Happiness*. This finding is of a similar nature to that of the original ESDS study (Snell *et al*, 1988) whereby male participants were less willing to discuss negative emotions with their partners.

The results show that the heterosexual female dog-owners in this study have a very different profile to that of the male dog-owners, since they are more willing to confide in their partners about feelings of *Anger* and *Fear* and more willing to confide in their dogs about feelings of *Depression*, *Jealousy*, *Calmness*, and *Apathy*.

The emotions that the female participants are more willing to confide in their partner, (Anger and Fear) are predominantly emotional states that may require intervention from the partner. These emotions may also be construed as undesirable sentiments to expose a dog to, since the dog may react to the sense of Fear by becoming hostile to a perceived threat to the owner, and may not be able to differentiate between their owner being angry at them, and being angry at something else whilst in the dog's presence; a claim supported by Horowitz (2009). What humans interpret as a guilty expression (in that the dog understands that their owner is angry with them) is actually a learned response to the appearance of an angry human. "*Merely uttering a dog's name with a rising, accusatory tone is often enough to elicit pre-emptive submissive behaviour*" (pg 451). With regard to the results of this study, the participants may have felt that it is unfair to subject a dog to anger, since the dog may perceive himself as being in the wrong when this may not be the case.

The pattern of being more willing to disclose to partners the emotions that may require some intervention is supported by the ideas of Tannen (1990), who emphasises the tendency for males to try to solve the problems presented to them by their female partners. Tannen goes on to explain that women often communicate to connect emotionally and put themselves at risk of disappointment when they disclose their concerns to their partner, since the response of males is often to try to solve the problem not to listen to it. On the other hand, dogs are passive in that they cannot take action and as such, may be viewed as 'better listeners' as they meet the females' need for a listener not a problem-solver. Thus, talking to a dog does not hold the same potential for disappointment; it is possible that women who anticipate the 'wrong' response from their partner (that is, a solution to a problem rather than comfort) may be more willing to disclose their concerns to their dog, particularly if the level of perceived comfort from their dog exceeds the level of experienced comfort from their partner. This could explain the preference shown by the female participants to confide in their dogs about feelings of *Depression*. It may be that when feeling in this way, female dog-owners choose to seek comfort from their dogs over their partners to avoid the risk of receiving an unwanted solution to the cause of the depressive feelings.

The preference of the female participants to talk to their dogs about feelings of *Calmness* may not be a *preference* as such, but rather a lack of the need to talk to their partners about those feelings. Research by Simon & Nath (2004) found that men report calm feelings more frequently than women and so it is possible that the female participants do not find themselves in a position whereby they feel the need to discuss such feelings very often. As aforementioned, the emotions that the participants prefer to talk to their male partners about are topics that may require intervention and since feelings of calmness do not fall into this category, they may be perceived as not worth discussing with partners.

A possible explanation for the participant's preferences to self-reveal about feeling of *Apathy* may be due to the impact of apathy; that is, a lack of motivation (Hsieh *et al*, 2012). In these circumstances it is possible that there may be a concern that a partner may misconstrue the feeling of apathy, as a

feeling of lack of satisfaction within the relationship, whereas dogs will not make any assumption or react unfavourably and for some people, represent a source of motivation (Knight & Edwards, 2008). Similarly for *Jealousy*, Buss *et al* (1992) found that causes of jealousy differ between males and females (such as males are more likely to be made jealous by sexual infidelity whereas women are more likely to be made jealous by emotional infidelity). As a result, it may be that some females recognise that their male partners may not understand their reasons for feeling jealous and thus will not empathise with them. In such circumstances, where there is a chance that their concerns are met with disregard or are labelled as unfounded, it may be that these females turn to their dogs to voice their concerns, since there is no risk of an undesirable response.

These results suggest that the potential benefits of self-disclosure to dogs may be more available to female dog-owners than to their male counterparts since they are not only more willing to confide in their dogs (as shown in the descriptive statistics, Table 11), but may also be confiding in them about topics that male dog-owners are less willing to discuss.

Principal Component Analysis was used to reveal which items of the SDwDS the participants treated similarly when answering about their willingness to confide in their partner and their dog. Interestingly, for both the male and female samples, one common factor to emerge from the 'willingness to confide in partner' data was '*Positive*'. This factor was made up of all of the *Happiness* items and four of the five *Calmness* items, with the exception of '*Quiet*'. The exclusion of this item is likely due to the double-meaning of the word, with some participants possibly defining it as meaning *reserved*, rather than calm, as was its intended meaning within the *Calmness* subscale. Another factor to appear in both the male and female samples was the '*Content*' factor, made up of all of the items from the *Happiness* and *Calmness* subscales. This pattern suggests that both the male and female participants treat these topics in a very similar way in terms of willingness to confide about them.

The other factors to emerge from the PCA suggest that the male and female participants do not regard all of the items on the SDwDS in the same way, although some common themes do seem to appear, such as the frequent grouping of items from the *Depression*, *Anxiety* and *Fear* subscales together and the constant grouping of almost all of the items from the *Happiness* and *Calmness* subscales. In other words, there is always one negative and one positive factor, often with a third factor largely containing items from the *Anger* subscale. Surprisingly though, from the male data on 'willingness to confide in dog' the '*Apathetic*' and '*Sad*' items loaded highest in what would have been labelled the '*Content*' factor, but as a result was instead labelled '*Mostly Positive*'. It would appear that the male dog-owners are as willing to confide in their dogs about these two items as they are about feelings of happiness and calmness.

The average scores of willingness to confide in partner and dog for each of the new factors generated by the PCA show that the female participants were more willing to talk about the factors than the male participants were, and were most willing to talk about the '*Content*' factor and least willing to

talk about the '*Tense*' factor. The male participants were most willing to talk about the '*Mostly positive*' factor and least willing to talk about the '*Hostile*' factor. The four-factor structure revealed by the PCA of the difference scores produced significant results for the female participants, but not the male participants. This result is not surprising given that the male sample showed no significant preference of disclosure recipient using the original eight-subscale structure either.

With the differing structures shown by the PCA in mind, there is potential to reduce the number of items used in the SDwDS without compromising its reliability. A shorter version of this scale would be beneficial as the current 40-item scale is very long and resulted in a large number in of incomplete responses. Since the disclosure patterns of male and female dog-owners are significantly different; the topics in which the most difference occurs being *Happy*, *Infuriated*, *Possessive*, *Scared* and *Worried*, creating subscales of the above emotions could be a valid means of testing differences in male and female disclosure patterns.

CONCLUSION

This study provides preliminary information on the difference in disclosure patterns of male and female dog-owners, including which topics they are most willing to talk about and who their preferred disclosure recipient is for each of those topics. The female participants were more willing to confide in their dogs about feelings of *Depression*, *Jealousy*, *Calmness* and *Apathy* and more willing to confide in their male partners about feelings of *Anger* and *Fear*. The male participants on the other hand did not differ significantly in their preference of disclosure recipient for any of the eight subscales of the SDwDS. Whether or not these different patterns of disclosure preference relate to different benefits derived from the relationship remains to be established and shall be the focus of the next chapter.

CHAPTER 3

The Relationship between Self-Disclosure and Quality of Life

This chapter describes a new and separate study to the one described in Chapter 2. The aim of the study described in this chapter was to (1) determine the differences between dog-owners and non-dog-owners' disclosure patterns to their partner, confidante and dog, (2) determine whether dog-owners and non-dog-owners differ in their quality of life and (3) determine whether quality of life can be predicted by disclosure patterns.

INTRODUCTION

The findings of the study described in Chapter 2 revealed that heterosexual female dog-owners are significantly more willing to confide in their partners than their dogs about feelings of Anger and Fear and significantly more willing to confide in their dogs than their partners about feelings of Depression, Jealousy, Calmness and Apathy. Though providing a strong foundation from which to proceed, this study did not provide any information on the potential benefits that those dog-owners may be receiving as a result of having an alternative disclosure-recipient to whom they can disclose the topics that they may be less willing to confide in their partners. Therefore a further study was undertaken to address the question; *do dogs fulfil a role similar to a human confidante or, do they provide an additional and separate outlet for disclosures that owners would not normally be willing to make to their partners and confidantes?* In other words, are dogs a substitute or an additional outlet?

In addition we also wanted to explore the relationship between dog-ownership, self-disclosure and quality of life. Therefore this final study also included a quality of life scale to be completed at the same time as the modified self-disclosure scale. In this way we could determine whether disclosure patterns can be used to predict quality of life.

This study was approved by the relevant University ethical review committee (School of Life Sciences delegated authority).

METHODS

A further online survey was developed using 'SurveyMonkey' (www.surveymonkey.com/r/aislinn) combining demographic questions with two established scales: the Emotional Self-Disclosure Scale (ESDS, Snell *et al*, 1988), that had been adapted for use with dogs (see Chapter 2, here on referred to as the Self-Disclosure with Dogs Scale, SDwDS) and a quality of life scale, The Flanagan Quality of Life Scale (QoL, Flanagan, 1978). See Appendix 11 for full survey.

Some changes were made to the format of the SDwDS for this study. In this study dog owners and non-dog owners were invited to take part so that differences between disclosure patterns and QoL score could be analysed. To accommodate both owners and non-owners, the format of the online survey was changed to include different response lines for dog-owners and non-dog-owners (see Appendix 11 for clarification).

A slight change was made to the wording of the SDwDS. Instead of asking participants how willing they are to ‘confide’ in their partner / confidante / dog they are asked how willing they are to ‘talk to’ their partner / confidante / dog about the same 40 items described in Chapter 2 (Appendix 3). This change was made as it was suggested that the term ‘confide’ may have connotations of secrecy and could be contributing to the small number of male participants that had taken part in the previous study, since previous research has shown that males are more willing to discuss positive topics (Snell *et al*, 1988). In order to determine that this change in the wording had no significant effect on the responses, a Mann Whitney U test was carried out between the participants of the study described in Chapter 2 and the current study.

An additional ‘disclosure recipient’ was included in this version of the SDwDS survey. Whereas in the study described in Chapter 2, participants were asked how willing they would be to confide in their partner or dog, in this study they were also asked how willing they would be to talk to their closest confidante. This allowed us to examine which model the dog might be most closely aligned to. Non-dog owners were asked to only answer how willing they would be to talk to their partner and confidante.

The original Flanagan Quality of Life Scale (QoL, Flanagan, 1978) is a 15 item measure that asks participants how satisfied they are with various aspects of their everyday lives. However, following concerns that adaptations for persons with chronic conditions or disabilities may be necessary (Buckhardt *et al*, 2003), a sixteenth item “Independence, doing for yourself” was added after 1981. The 16-item measure was used in the current study (Appendix 12). Participants answer on a scale of 1 - 7 whereby 1 = ‘Terrible’ and 7 = ‘Delighted’. By totalling the scores of the sixteen items, a total score between 16 and 112 is calculated, with higher scores corresponding with a greater quality of life (QoL).

The survey was posted online in April 2015 and was advertised through the use of social media, posters displayed around the university campus, in groomers, boarding kennels, and catteries and a press release issued by the University of Lincoln press office (see Appendix 13 for advertising). Respondents were asked to acknowledge that their participation in the survey was voluntary and confirm their eligibility; i.e. that they were over 18 years of age and had been in a relationship with the same partner for at least six months and (dog-owning participants only) had owned the same dog for at least six months. Data were harvested in June 2015, although the survey was not closed at this point to allow for further data collection in the future.

In order to determine test-retest reliability participants were asked whether or not they would be willing to retake the survey in eight weeks' time by providing their email address so that a link to a duplicate survey could be sent to them. The following statistical analyses were conducted using SPSS version 22 for Windows. To test for reliability, Wilcoxon Matched Pairs and Spearman's Signed-Rank correlation were used to compare participants' original responses to their responses 8 weeks later. In order to determine whether there were statistically significant differences between what the dog-owning participants were willing to talk to their partners, confidantes and dogs about, Wilcoxon pairwise comparisons were carried out. Similarly, in order to determine whether there were significant differences in what the non-dog-owners were willing to talk to their partners and confidantes about, Wilcoxon pairwise comparisons were used. In addition, in order to determine whether there were significant differences between what the dog-owners and non-dog-owners were willing to talk to their partner and confidante about, Mann Whitney U tests for independent samples were used, with a Bonferroni correction. In order to determine whether dog-owners and non-dog-owners differ significantly in their quality of life scores, a Mann Whitney U test for independent samples was used.

In order to analyse the effects related to the dog-owning participants' disclosure patterns, the alternative four factor SDwDS structures provided by the Principal Component Analysis (PCA) conducted in Chapter 2 was utilised, instead of the original eight-subscale structure of the SDwDS. The four factors for the 'willingness to talk to partner' data are: (1) Nervous (2) Positive (3) Disconnected and (4) Jealous. The four factors for the 'willingness to talk to dog' data are: (1) Anxious (2) Content (3) Contentious and (4) Tense. Survey scores from the current study were transformed into weighted scores using the PCA structure, to calculate 'factor scores'. In the study described in Chapter 2, a Principal Component Analysis was performed on the participants' scores for willingness to confide in partner and dog. The structure for the participants' willingness to confide in their partner (Appendix 14) and dog (Appendix 15) were used according to their gender to produce 'factor scores' for that gender group in the current study (females only). This was done by multiplying the participants' survey scores for their willingness to talk to their partner / dog about each item by the PCA factor loading scores for that item. Items that loaded on the same factor were then summed to give a score for that factor. Thus the PCA factor loadings for willingness to confide in partner (Appendix 14) were used with the current participants' survey scores for willingness to talk to partner; a similar process was repeated for willingness to talk to dog (Appendix 15).

To determine whether the participants' disclosure patterns predicted their quality of life scores, linear regression analyses were conducted using QoL score as the dependent variable and willingness to talk to partner / confidante / dog about each of the original eight subscales of the SDwDS as the independent variable. Only subscale scores that correlated with QoL scores with a *p* value below 0.2

in the univariate analysis (Appendices 16 and 17) were entered into a multivariate model. Multiple regression analyses were conducted, initially using a backwards entry method, with its robustness assessed by convergence with a forwards entry method. Dog-owners (Appendix 16) and non-dog-owners (Appendix 17) were analysed separately.

Likewise, in order to determine which of the factors revealed by the PCA were the best predictors of QoL, backwards multiple regression analyses were conducted using each factor that had an association with a p value below 0.2 with QoL in the univariate analysis (Appendix 18). These analyses were carried out for 'Partner' and 'Dog', but were not used on the 'Confidante' responses since it was the 'Partner' and 'Dog' scores (from the Chapter 2 dataset) that provided the PCA structure. Since 'Dog' responses were not available for the non-dog-owners, only the 'Partner' responses were analysed for the non-dog-owners. In addition, qualitative interviews with female dog-owners were carried out in order to hear, in their own words, their reasons for talking (or not talking) to their dogs. Eight female dog-owners were interviewed, four of which were recruited through an invitation at the end of the survey which they responded to via email. Two owners heard about the interviews through word-of-mouth and asked to take part and two were invited from a non-competitive dog-agility class. These interviews were not subjected to any statistical or thematic analysis but instead are used to support discussion points. See Appendices 19a-j for interview script, consent form and original transcripts.

RESULTS

10 weeks after the online survey was launched, data were harvested for analysis. 528 volunteers had taken part in the survey however, 281 of these responses were excluded due to being incomplete. The remaining 247 respondents included 201 dog-owners (173 female, 28 male) and 46 non-dog-owners (40 female, 6 male). Due to the unequal ratio of female to male participants the responses from the male participants were excluded and the following analyses were conducted on the data from the heterosexual female participants only (173 dog-owners and 40 non-dog-owners). See Appendix 20 for more information on the participants.

The change in wording from 'confide' to 'talk to' had only one significant effect on the participants' responses for either their 'Partner' or 'Dog' (Table 23, previous data for 'Confidante' was not available). This was for willingness to confide/talk to one's dog about feelings of *Anger* (highlighted). Surprisingly, the direction of the effect also changed, with the median scores showing that the participants in the current study were more willing to talk to their dog, whereas the participants in the first study were more willing to confide in their partner.

Table 23: Effect of Changing Survey Wording From ‘Confide in’ to ‘Talk to’ Current Study Owners ($n = 173$, Talk to) vs Previous Study Owners ($n = 232$, Confide in) Mann Whitney U Test, $p = 0.00625$ for significance (Bonferroni correction)						
Subscale	Partner			Dog		
	Median 1 st survey	Median 2 nd survey	p value	Median 1 st survey	Median 2 nd survey	p value
Depression	20	21	.127	23	25	.089
Happiness	25	25	.014	25	25	.044
Jealousy	17	19	.088	21	24	.067
Anxiety	20	21	.197	21	25	.081
Anger	20	20	.451	17.5	23	.003[†]
Calmness	23	23	.334	25	25	.524
Apathy	18	18	.738	21	24	.164
Fear	22	22	.969	22	25	.032
[†] owners in current study scored higher						

Table 24 shows the results of the Wilcoxon Matched Pairs and Spearman’s Signed-Rank correlation that were used to assess test retest reliability. The participants’ responses remained consistent over the eight week period in all emotional subscales of the SDwDS for willingness to talk to partner, confidante and dog. The participants’ responses to the Flanagan QoL also remained consistent over the eight week period. This was true for both the dog-owners and non-dog-owners.

Table 24: Test Retest Reliability Original responses to the SDwDS and Flanagan QoL vs Responses Eight Weeks Later Wilcoxon Matched Pairs and Spearman's Signed-Rank Correlation, $p = 0.00625$ for significance (Bonferroni correction)							
		Dog-Owners ($n = 34$)			Non-Dog-Owners ($n = 6$)		
Subscale	Disclosure Recipient	Wilcoxon Matched Pairs	Spearman's Signed-Rank		Wilcoxon Matched Pairs	Spearman's Signed-Rank	
		<i>p</i> value	<i>rho</i> value	<i>p</i> value	<i>p</i> value	<i>rho</i> value	<i>p</i> value
Depression	Partner	.094	.733	<0.001	.465	.882	.020
	Confidante	.918	.665	<0.001	.786	.771	.072
	Dog	.312	.740	<0.001			
Happiness	Partner	.499	.732	<0.001	.785	1.00	<0.001
	Confidante	.636	.661	<0.001	.102	1.00	.094
	Dog	.637	.790	<0.001			
Jealousy	Partner	.410	.779	<0.001	1.00	.868	.025
	Confidante	.321	.625	<0.001	.713	.771	.072
	Dog	.304	.686	<0.001			
Anxiety	Partner	.358	.737	<0.001	.581	.882	.020
	Confidante	.959	.686	<0.001	.684	.647	.165
	Dog	.354	.677	<0.001			
Anger	Partner	.909	.603	<0.001	.713	.896	.016
	Confidante	.520	.828	<0.001	.357	.928	.008
	Dog	.744	.640	<0.001			
Calmness	Partner	.574	.554	.001	.705	.955	.003
	Confidante	.633	.697	<0.001	.141	.851	.032
	Dog	.156	.688	<0.001			
Apathy	Partner	.680	.724	<0.001	.854	.970	.001
	Confidante	.864	.601	<0.001	.680	.986	<0.001
	Dog	.222	.703	<0.001			
Fear	Partner	.172	.773	<0.001	.357	.912	.011
	Confidante	.515	.760	<0.001	.715	.750	.086
	Dog	.541	.777	<0.001			
QoL		.607	.724	.000	.340	.928	.008

Female dog-owners were significantly more willing to talk to their dog than their male partner about feelings of *Jealousy* (Wilcoxon pairwise comparisons, Table 25) and significantly more willing to talk to their dog than their closest confidante about feelings of *Depression*, *Jealousy*, *Calmness*, *Apathy* and *Fear* (Wilcoxon pairwise comparisons, Table 26).

Table 25: Willingness of Dog-Owners to Talk to Their Partner vs Dog <i>n</i> = 173, Wilcoxon test, <i>p</i> = 0.00625 for significance (Bonferroni correction)			
Subscale	<i>p</i> value	Median	
		Partner	Dog
Depression	0.084	21	25
Happiness	0.483	25	25
Jealousy	0.002^D	19	24
Anxiety	0.917	21	25
Anger	0.228	20	23
Calmness	0.220	23	25
Apathy	0.022	18	24
Fear	0.517	22	25
^D in favour of dog			

Table 26: Willingness of Dog-Owners to Talk to Their Confidante vs Dog <i>n</i> = 173, Wilcoxon test, <i>p</i> = 0.00625 for significance (Bonferroni correction)			
Subscale	<i>p</i> value	Median	
		Confidante	Dog
Depression	<0.001^D	19	25
Happiness	0.185	24	25
Jealousy	<0.001^D	16	24
Anxiety	0.006^D	19	25
Anger	0.204	18	23
Calmness	<0.001^D	21	25
Apathy	<0.001^D	16	24
Fear	0.003^D	18	25
^D in favour of dog			

Both dog-owners and non-dog-owners appeared potentially more willing to talk to their partner than their closest confidante about all eight subscales however, these results were only statistically significant for the dog-owners (highlighted, Table 27).

Table 27: Willingness of Dog-Owners ($n = 173$) to Talk to Their Partner vs Confidante Willingness of Non-Dog-Owners to Talk to Their Partner vs Confidante ($n = 40$) Wilcoxon test, $p = 0.00625$ for significance (Bonferroni correction)						
	Dog-Owners			Non-Dog-Owners		
Subscale	p value	Median		p value	Median	
		Partner	Confidante		Partner	Confidante
Depression	<0.001 ^P	21	19	0.127	20	17
Happiness	<0.001 ^P	25	24	0.036	25	23
Jealousy	<0.001 ^P	19	16	0.345	17.50	17.50
Anxiety	<0.001 ^P	21	19	0.107	20.50	19
Anger	<0.001 ^P	20	18	0.054	20	17
Calmness	<0.001 ^P	23	21	0.130	23.50	22
Apathy	<0.001 ^P	18	16	0.058	18	16
Fear	<0.001 ^P	22	18	0.008	22	19
^P in favour of partner						

There was no significant difference between dog-owners and non-dog-owners in how willing they are to talk to their partner and closest confidante about the eight subscales (Table 28).

Table 28: Dog-Owners ($n = 173$) vs Non-Dog-Owners ($n = 40$) Willingness to Talk to Partner and Willingness to Talk to Confidante Mann Whitney U test, $p = 0.00625$ for significance (Bonferroni correction)						
	Partner			Confidante		
Subscale	p value	Median		p value	Median	
		Dog-Owners	Non-Dog-Owners		Dog-Owners	Non-Dog-Owners
Depression	.722	21	20	.940	19	17
Happiness	.914	25	25	.392	24	23
Jealousy	.967	19	17.50	.343	16	17.50
Anxiety	.854	21	20.50	.768	19	19
Anger	.993	20	20	.651	18	17
Calmness	.321	23	23.50	.331	21	22
Apathy	.279	18	18	.481	16	16
Fear	.657	22	22	.694	18	19

Dog-owners scored significantly higher on the QoL scale than the non-dog-owning participants (Table 29). Table 29 highlights which items of the scale contributed to the significant difference seen.

Table 29: Dog-Owners ($n = 173$) vs Non-Dog-Owners ($n = 40$) Quality of Life (QoL) Score Mann Whitney U –test, $p = 0.003125$ for significance (Bonferroni correction)			
QoL Item	p value	Median	
		Dog-Owners	Non-Dog-Owners
Material	.052	6	5
Health	.278	5	5
Relationships	.298	6	5
Children	.652	6	6
Spouse	.419	6	6
Friends	.703	6	6
Volunteering	.001^{D-O}	6	5
Organisations	.000^{D-O}	5	4
Learning	.094	6	6
Yourself	.013	6	5
Work	.032	6	5
Creativity	.012	5	5
Socialising	.006	5	5
Entertainment	.023	6	6
Recreation	.024	6	5
Independence	.012	6	6
Total QoL Score	.001*	90	82.50
^{D-O} dog-owners scored higher than non-dog-owners			

The regression analysis of the relationship between QoL of dog-owners and the original subscales (for partner, confidante and dog) revealed that when using the backwards entry method, only willingness to talk to partners about *Anxiety* ($\beta = .246$, $t(171) = 3.316$, $p = .001$) was a significant predictor of QoL ($F(1, 171) = 10.993$, $p = 0.001$, $R^2 = .060$, Adjusted $R^2 = .055$). This showed poor convergence with the forwards entry method model, which found that willingness to talk to partners about *Fear* ($\beta = .252$, $t(171) = 3.408$, $p = .001$) was the only significant predictor of QoL ($F(1, 171) = 11.617$, $p = 0.001$, $R^2 = .064$, Adjusted $R^2 = .058$). Accordingly, given the lack of convergence and small R^2 , the simple structure of disclosure patterns (using the original eight subscales) does not appear useful for predicting QoL (Table 30).

For non-dog-owners, the backwards entry method indicated that willingness to talk to confidantes about *Happiness* ($\beta = .403$, $t(37) = 2.871$, $p = .007$) and willingness to talk to partners about *Calmness* ($\beta = .304$, $t(37) = 2.162$, $p = .037$) were significant predictors of QoL ($F(2, 37) = 8.654$, $p = 0.001$, $R^2 = .319$, Adjusted $R^2 = .282$). Convergence with the forwards entry method was again poor, with willingness to talk to confidantes about *Calmness* ($\beta = .527$, $t(38) = 3.820$, $p < 0.001$) the only significant predictor of QoL ($F(1, 38) = 14.589$, $p < 0.001$, $R^2 = .277$, Adjusted $R^2 = .258$, Table 30).

Using the PCA structure to predict QoL of dog-owners and using the backward entry method, it was found that willingness to talk to partners about the *Nervous* factor ($\beta = .264$, $t(171) = 3.576$, $p < 0.001$) was a significant predictor of QoL ($F(1, 171) = 12.785$, $p < 0.001$, $R^2 = .070$, Adjusted $R^2 = .064$). This showed convergence with the forwards entry method model, which found that willingness to talk to partners about the *Nervous* factor ($\beta = .264$, $t(171) = 3.576$, $p < 0.001$) remained the only significant predictor ($F(1, 171) = 12.785$, $p < 0.001$, $R^2 = .070$, Adjusted $R^2 = .064$). However, the proportion of variance explained remained low, indicating other factors play a major role.

Using the PCA structure to predict QoL of non-dog-owners and using the backward entry method, it was found that willingness to talk to partners about the *Positive* factor ($\beta = .364$, $t(38) = 2.406$, $p = .021$) was the only significant predictor of QoL ($F(1, 38) = 5.791$, $p = .021$, $R^2 = .132$, Adjusted $R^2 = .109$). Convergence was found with the forwards entry method which found that willingness to talk to partners about the *Positive* factor ($\beta = .364$, $t(38) = 2.406$, $p = .021$) remained the only significant predictor ($F(1, 38) = 5.791$, $p = .021$, $R^2 = .132$, Adjusted $R^2 = .109$) however, the proportion of the variance explained remained low.

Table 30: Willingness to talk to Partner / Confidante / Dog about Subscales with a Linear Regression p value below 0.2 vs QoL Multiple Regression Analyses for Dog-Owners ($n = 173$) and Non-Dog-Owners ($n = 40$)								
Dog-Owners								
				Co-efficients			ANOVA	
Model	Method	R^2	Adjusted R^2	β	t	Sig	F	Sig
Anxiety – Partner	Backward	.060	.055	.246	3.316	.001	10.993	.001
Fear – Partner	Forward	.064	.058	.252	3.408	.001	11.617	.001
Non-Dog-Owners								
Happiness – Confidante	Backward	.319	.282	.403	2.871	.007	8.654	.001
Calmness – Partner		.319	.282	.304	2.162	.037	8.654	.001
Calmness – Confidante	Forward	.277	.258	.527	3.820	<0.001	14.589	<0.001
Dog-Owners PCA Structure								
Nervous – Partner	Backward	.070	.064	.264	3.576	<0.001	12.785	<0.001
Nervous – Partner	Forward	.070	.064	.264	3.576	<0.001	12.785	<0.001
Non-Dog-Owners PCA Structure								
Positive – Partner	Backward	.132	.109	.364	2.406	.021	5.791	.021
Positive – Partner	Forward	.132	.109	.364	2.406	.021	5.791	.021

DISCUSSION

As with the study described in Chapter 2, there were considerably more female participants than male participants that volunteered to take part in this project and also more dog-owners than non-dog-owners. The ratio of dog-owners to non-dog-owners may be due to the locations in which posters advertising the study were displayed; primarily dog-groomers and boarding kennels, as well as the willingness of non-owners to engage in a survey on a subject they may have little direct interest in. Although other, non-dog-related, establishments such as hair-dressers and universities and were also approached to advertise the survey, these establishments were less willing to display the posters. As a result, the majority of posters advertising the survey would have been seen by a largely dog-owning audience.

The wording of the SDwDS was changed from ‘how willing are you to confide in...’ to ‘how willing are you to talk to...’ in an attempt to increase male responses since it was suggested that the term ‘confide’ may be off-putting. The results show that this change to the wording did not greatly affect the responses of the participants, with remarkably similar results obtained in the two studies. The only significant change in participants’ responses was for willingness to confide / talk to Partner or Dog about feelings of Anger. Participants in the first study were more willing to confide in their Partner about feelings of Anger, whereas participants in the second study were more willing to talk to their Dog about feelings of Anger. It is possible that the term ‘confide’ implies a more in-depth disclosure than the term ‘talk to’. As a result it may be that the participants were more willing to discuss their feelings of Anger with their Partner than their Dog, but more willing to tell their Dog what was making them Angry, without going into any detail.

Given that the participants had to answer the SDwDS in relation to both their partner and closest confidante (plus their dog if they owned one), the survey was very long and the addition of the QoL scale resulted in an additional sixteen questions being added. The length of the survey was likely to have been a deterrent for many people, as seen in the proportion (59.66%) of respondents who did not complete it. Due to this, there is a chance of a biased sample of respondents since those who did complete the survey may be of a more open nature and more likely to provide information in the first place.

The results of this study show that female dog-owners are more willing to talk to their dog than their male partner about feelings of *Jealousy* and more willing to talk to their dog than their closest confidante about feelings of *Depression*, *Jealousy*, *Apathy*, *Calmness* and *Fear*. These findings partially support those of the study described in Chapter 2, whereby female dog-owners were more willing to confide in their dogs than their partner about feelings of *Jealousy* and *Apathy*, *Depression* and *Calmness*. Interestingly, there were no topics that the dog-owners would rather confide in either their partner or confidante than their dog. The reason for this preference of dogs as disclosure recipients may be found in the responses to the interviews that were undertaken with female dog-owners. A recurring theme among the interviewees was that dogs do not judge or answer back and

therefore enabled their owners to get things off their chest without any potential repercussions or unwanted comments, a concept that is well supported in the literature (Tannen, 1990).

“If I’m annoyed with my partner, I’d probably be more inclined to tell her [the dog] than anyone else... I’ve got friends I can talk to but I feel like they might judge me later...”

*“...some things I wouldn’t even talk to my husband about. You know, things that really bother me... I’d more likely tell the dog about that than anybody else. I would probably turn to my dog first... It might be a problem that I’m stuck with or, just generally when I feel I just need some advice from somebody *laughs* not that the dogs will give me that, but it’s this talking out loud that helps my thinking and facilitates that process... but I feel it’s weirder when it’s just me on my own so the dogs, just their presence, just being there, I feel somebody else is listening to me... I don’t necessarily feel I can talk to my husband about specific things simply because I feel he may not want to understand or he may not understand, or maybe he won’t say the things I want to hear that I can tell myself... I just want to talk about it but I don’t necessarily want a comment back... I don’t want that wise wisdom back, but my husband doesn’t necessarily listen, that’s the issue, or he will put it aside as ‘one of your moods’, whereas the dogs don’t do that...”*

“You say things that you don’t want to say to somebody else. You vent it and put it through the animal first... like a practice...”

One of the objectives of this study was to determine whether dogs play a role similar to that of confidantes, in terms of what their owners were willing to talk to them about. The results of this study (Table 28) showed that there was no significant difference between how willing dog-owners and non-dog-owners were to talk to partner and confidante about the eight topics, suggesting that in fact, dogs provide an additional and separate outlet for disclosures that owners would rather not confide in their partner or confidante. As aforementioned in Chapter 1, having an outlet for negative disclosures is beneficial to health, particularly when faced with difficult or traumatic experiences (Pennebaker & Beall, 1986) and focusing on positive emotions is an effective coping mechanism for some people in times of stress (Frazier & Burnett, 1994).

Another objective of this study was to determine whether dog-owners and non-dog-owners differ in their QoL scores and whether or not their disclosure patterns can be used to predict their QoL score. The results show that dog-owners scored significantly higher on the QoL than non-dog-owners, with the items that contributed most to this significant difference being how satisfied they were with *“Helping and encouraging others, volunteering, giving advice”* and *“Participating in organisations and public affairs”*. These are activities that in some instances (although not always) could involve engaging with and helping people outside of one’s ‘everyday’ circle of friends – a task that may seem daunting to those harbouring negative feelings such as those of *Depression, Jealousy, Apathy* and *Fear*. These are topics that the dog-owners in this study were more willing to talk to their dog about, although they were not predictive of QoL score.

One possible explanation could be that having a canine confidante in whom to confide such disclosures without receiving any verbal feedback may provide the necessary outlet to overcome such feelings and as a result, be more willing to take part in the above mentioned activities.

However, it is also possible that it is some other aspect of dog-ownership that increases the likelihood of taking part in these activities and that confiding in one's dog plays no role in why the dog-owning participants in this study had higher QoL scores, characterised by increased satisfaction with "*Helping and encouraging others, volunteering, giving advice*" and "*Participating in organisations and public affairs*". It is also possible that it is not dog-ownership that is responsible for the difference in QoL scores between the dog-owners and non-dog owners and that it is another aspect of their lives that has not been examined by this study.

It is worth noting that is QoL was not designed to be analysed item-by-item but rather should be regarded as one value of QoL (Burckhardt & Anderson, 2003). The items that dog-owners and non-dog-owners scored significantly differently on are only shown as a point of interest. The female dog-owners who were interviewed as part of this study were asked how they feel after talking to their dog; responses included:

"Happy! Very happy!"

"I think they, mentally, keep you more balanced... because you would say things to them that you wouldn't say to people..."

"I suppose whenever you talk out loud I find that quite soothing anyway, especially if I talk to somebody and felt that they're listening to me, as the dog does. If I'm really upset about something then I feel a lot better afterwards and quite relieved..."

"I probably feel happier that I've had some interaction, in a positive way..."

"If you're feeling a bit down anyway then, y'know, it helps you feel better..."

As shown by the regression analyses, perhaps surprisingly, willingness to talk to one's dog about any of the topics of the SDwDS did not significantly predict QoL scores. Using the four-factor structure outlined by the PCA instead of the original eight-subscale structure of the SDwDS produced more robust results, with dog-owners' willingness to talk to their partner about the *Nervous* factor being the only topic predictive of QoL scores. This may not be surprising given that the *Nervous* factor contains four out of five of the *Anxiety* items and all five of the *Fear* items, which were found to be important in the different models using the original eight subscale structure.

For the non-dog-owners, a similar problem of lack of convergence arose with the use of the original disclosure scale structure. However, using the four factor PCA structure yielded more robust results, showing that willingness to talk to one's partner about the *Positive* factor was predictive of QoL scores; unsurprisingly given that the *Positive* factor is comprised of almost all of the items from the *Happiness* and *Calmness* subscales, which were indicated as potentially important when using the

original eight subscale structure. Again the proportion of variance explained was small and it should be treated with caution due to the small sample size of non-dog-owners ($n = 40$).

It is interesting that the QoL of dog-owners and non-dog-owners should be predicted by different topics; predominantly confiding about negative emotions for the dog-owners and positive emotions for the non-dog-owners. This suggests that the two populations rate their QoL differently and perhaps even more surprising is the finding that for the dog-owners, this difference does not relate directly to any form of confiding in the dog. Given that the models explain only a small amount of the variance, it may be that self-disclosure is not a strong factor in determining QoL and may not relate wholly to a wider population.

For dog-owners, talking to one's partner did appear to affect QoL scores however, willingness to talk to one's dog did not. When combined with the result that the dog-owners scored higher on the QoL than the non-dog-owners, it would appear that talking to one's dog serves a different function to that of talking to one's partner. It is possible that any potential benefits of self-disclosure to dogs are not being captured by the measure of QoL used in this study.

The nature of the QoL is to assess satisfaction with various aspects of everyday life however, the items on the scale are not necessarily subject to affect by dog-ownership. That is to say, there are few items, if any, that could be directly affected by having a canine confidante. Items such as '*Relationships with parents, siblings & other relatives- communicating, visiting, helping*', '*Close relationships with spouse or significant other*', '*Close friends*' and '*Socializing - meeting other people, doing things, parties, etc*' are likely to be impacted by the relationship a person has with those individuals, a key feature of which may or may not be self-disclosure however, there are no items, perhaps with the exception of '*Participating in active recreation*' that would be immediately impacted by one's relationship with their dog.

This scale was chosen as an all-round measure of QoL to test whether self-disclosure to dogs could predict QoL however, in hindsight, it appears that a QoL scale that incorporates items that dog-ownership may directly affect (such as being responsible for others, level of perceived social support and the ability to do things on a whim) may be a more suitable and robust measure.

CONCLUSION

The results of this study show that female dog-owners are significantly more willing to talk to their dogs than their male partners about feelings of *Jealousy* and are significantly more willing to talk to their dog than their closest confidante about feelings of *Depression*, *Jealousy*, *Calmness*, *Apathy* and *Fear*. This study also found that the female dog-owners in this study have higher Quality of Life scores than the non-dog-owning females. Despite the testimonies of the dog-owning interviewees who believe that talking to their dogs has a positive impact on them, willingness to talk to one's dog

was not predictive of QoL scores, suggesting that the potential benefits of self-disclosure to dogs are not captured by the QoL measure used in this study. Future research would benefit from a different measure of QoL that is more sensitive to aspects of everyday life that are directly impacted by dog-ownership, or better yet, a longitudinal study that measures QoL or self-perceived well-being before and after a period of regular self-disclosure to dogs.

CHAPTER FOUR

DISCUSSION

Research on the effects and health benefits of dog-ownership is gaining momentum as it gains popularity. However, in the literature there remain questions unanswered, particularly in regard to which aspects of dog-ownership are directly responsible for the effects that are being reported.

In the first chapter of this thesis, the current state of the dog-ownership literature was examined through the use of a systematic literature review which asked the question ‘what is it about dog-ownership that gives rise to any benefits for normal owners?’ This review aimed to determine which dimensions of the dog-owner relationship (as outlined by Mills *et al*, 2014) had been examined and what benefits (as a result of these dimensions) had been reported.

The main conclusions of the review were that, relationship dimensions are often not specifically acknowledged in the literature and there are many dimensions that do not appear to have been considered to any great degree. In fact, the majority of papers included in the review only covered the dimensions of *Content of interactions* and *Intimacy* and even then, the effect of *Intimacy* was not widely tested. Some of the papers specified that the relationship being examined was between a dog and its primary caregiver however, many simply stated that they were investigating the effects on dog ‘owners’. Ownership indicates possession but no specific psychological attribute since owner-pet relationships are highly variable. Without defining the relationship between the dog and its owner either in the activities shared together, the style of the relationship, or the beliefs about dog-ownership that the owner holds, it cannot be claimed that the relationships being examined in these studies were of a similar nature.

Not all owners are the same and the way in which they behave with their dog and the style of relationship they have with their dog is likely to have an effect on the benefits that are available to them. Obvious differences between owners, such as gender, may result in fundamental differences in the benefits derived from dog-ownership. For instance, male and female owners may receive different benefits of dog-ownership. Two, quite different, reasons for differences in the benefits are available. Firstly, male and female owners may interact with their dog in the same way and yet receive different benefits due to gender differences in the perception of these interactions. Secondly, it may be that male and female owners interact with their dogs differently or view the relationship in a different way.

Likewise, not all dogs are the same; not only on a personality and behaviour level but also, more obviously, in their size and shape. As with owners, the *type* of dog may have an effect of the benefits available from dog-ownership. For example, a docile and affectionate dog who welcomes any and

all new-comers to the house is likely to be perfect for an owner looking for companionship however, is likely to be less-than-perfect for an owner seeking a guard dog and may even be a source of dissatisfaction. Undoubtedly, how well-matched an owner is with their dog will have an effect on the benefits they receive through owning that dog. That being said, none of the papers in the review tested whether the type of dog had an effect on the dependent variable being measured and so effects due to breed, size or temperament of the dog may have been overlooked.

As well as not controlling for any effects due to owner and dog characteristics, none of the papers that investigated the effect of interaction with one's dog controlled for the effect of the dog's presence alone. Without doing so it cannot be ascertained whether the outcomes reported were due to the interaction between the owner and dog, or whether the same effects would have been seen when the owner and dog were in each other's presence but without any direct interaction.

The most common independent variable investigated by the papers in the review was a type of *interaction*, including stroking, touching and talking to the dog. Literature on the effect of these type of interactions is extensive however, as aforementioned, many types of interaction are often examined together so that any effects seen cannot be definitively attributed to one specific type of interaction. One of these interactions that is less well examined is talking to dogs. Although some papers acknowledge that owners talk to their dogs as part of other interactions and communicate in order to attract their dog's attention and initiate play (Mitchell & Thompson, 1991, Mitchell & Edmonson, 1999) there appears to be no research, to the author's knowledge, on the benefits of talking to dogs. This gap in the literature was addressed by this project.

Chapter 2 aimed to discover whether dog-owners are more willing to talk to their dogs than their partners about various emotions and whether there are differences between the disclosure patterns of male and female dog-owners. The study found that female dog-owners are significantly more willing to confide in their male partners about feelings of Anger and Fear and are significantly more willing to talk to their dogs about feelings of Depression, Jealousy, Calmness and Apathy. Male owners on the other hand showed no significant difference in their willingness to confide in their partner and dog about any of the topics.

Another possible reason why female dog-owners may prefer to confide in their dogs about feelings of Depression, Jealousy, Calmness and Apathy might be that dogs are better, non-judgemental confidantes. Hatfield's 'risks of intimacy' (1984; exposure, abandonment, fear of angry attacks, fear of loss of control, fear of one's own destructive impulses and fear of being engulfed) do not apply to disclosures made to canine confidantes. As aforementioned in Chapter 1, where there are concerns that disclosures may be repeated, judged, criticised, or belittled (Hatfield, 1984), such risk is eliminated when the disclosure is made to a dog instead of a human. Particularly for the socially anxious (those who are less likely to disclose personal information based on their perceived risk of doing so (Cuming & Rapee, 2009) and who avoid negative social outcomes by not talking about themselves (Alden & Bieling, 1997)), these perceived risks may outweigh the benefits of self-

disclosure. In the case of intimate relationships, these risks may appear even greater; as Hendrick (1981) said *“In no relationship is the other more significant, the commitment more profound, or the risk more intense”*. Again, these risks do not apply to disclosures made to dogs.

Within intimate relationships, it is possible that the reason why the female participants were more willing to confide in their dog than their partner about these topics, is because their partner is the cause of these feelings. Since disclosing such feelings is fraught with risks such as exposing oneself to hurt and betrayal, people find ways to protect themselves from these risks, often by avoiding the subject altogether (Prager, 1998). This self-concealment is not a healthy behaviour (Larson & Chastain, 1990) and research has found that, particularly in women, there is a relationship between frequency of health problems and a poor social life that is characterised by a lack of self-disclosure and intimacy (Reis *et al*, 1985).

The findings of this study support the literature that suggests that women disclose more than men (Dindia & Allen, 1992, Sholley & Foubert, 1996, Morgan, 1976, Morton, 1978, Taylor *et al*, 2000, McDonald & Korabik, 1991). However, this does not imply that men are at risk of not receiving any potential health benefits of self-disclosure; rather, it may be that self-disclosure is more typically important to women and as a result they find it more beneficial than men. If men do not regard self-disclosure as being valuable, it is unlikely that they will benefit from it in the same way that women do.

The point made in Chapter 2 that men feel the need to problem solve whereas women prefer to listen and to comfort (Tannen, 1990), may explain why the male participants in this study were no more willing to confide in their dog than their female partner about any of the emotional subscales. Men may not see any benefit in confiding in a dog, since there is no perceived ‘gain’ in doing so; the dog cannot offer a solution to the problem. Also, it may be perceived that talking to a dog poses as much a risk of exposing oneself as does talking to a spouse. As discussed in Chapter 1, the need to ‘talk things through’ is often considered a somewhat feminine trait that men may not be willing to partake in as they believe it makes them appear vulnerable (Derlega & Chaikin, 1976, Gaia, 2013). This vulnerability is a socially undesirable trait in men, according to Zillman *et al* (1986) who state that *“A man who hides his fear may be more appealing to some women than a man who is more emotionally forthright”*.

Chapter 2 showed that there are topics that female dog-owners are significantly more willing to confide in their dog than their partner and given the existing literature on the health benefits of self-disclosure, the next objective of this project (covered in Chapter 3) was to determine whether self-disclosure to dogs has an effect on quality of life. This chapter not only investigated the differences between dog-owners willingness to talk to their partner versus their dog, but also their closest confidante versus their dog. As part of this, we wanted to determine whether the dogs were providing a similar role to that of the closest confidante, or whether there were topics that the owners would be significantly more willing to talk to their dogs than their confidante about. If so, this would indicate

that the dogs are not playing the same role as the confidantes, but instead are providing an additional outlet for self-disclosure. In addition, non-dog-owners were also asked to take part so that quality of life scores of dog-owners could be compared to the quality of life scores of non-dog-owners.

It was found that female dog-owners are significantly more willing to talk to their dog than their partner about feelings of Jealousy and are significantly more willing to talk to their dogs than their closest confidante about feelings of Depression, Jealousy, Calmness, Apathy and Fear. This significant difference in disclosure patterns to confidantes and dogs shows that the dogs are not providing the same role as the confidante. Although the quality of life scores of the dog-owners were significantly higher than those of the non-dog-owners, these higher scores were not predicted by willingness to talk to one's dog. Interestingly, the disclosure patterns of both dog-owners and non-dog-owners were very similar, indicating that the dog is not replacing the human but providing an additional opportunity for disclosure.

As discussed in Chapter 1, there are factors that influence who we will talk to and what we will talk to them about (Derlega *et al*, 1981). One of these factors is disclosure recipient; this includes both the discloser's relationship to the recipient and their gender. Participants in this study were asked to answer about their 'closest confidante' instead of a 'best friend' since there is research to suggest that not all best friends are always viewed as supportive (Allen *et al*, 1991) however, as a result, the gender of the chosen confidante is unknown. The work of Derlega and colleagues (1981) found that the gender of the discloser recipient has an impact on the nature of the disclosures made to that person.

Another factor that will have had an effect on the willingness of the participants to talk to their dog is whether or not they anthropomorphise their dog. It is possible that owners who engage in classical anthropomorphism and view their dogs as 'caring about their feelings' (Duvall Antonacopoulos & Pychyl, 2008) and as a result are more likely to confide in them. The dog-owning participants in this study all described themselves as being close to their dog, however no measure of tendency towards anthropomorphism was taken. This would be a useful area to explore in the future.

The fact that the dog-owners scored higher on the quality of life scale suggests that there is something about dog-ownership that affects quality of life, but that willingness to talk to the dog is not that 'something'. In 2006, Farber theorised six potential benefits of self-disclosure: (a) intimacy through experiencing greater emotional closeness to another, (b) validation and affirmation – being known and validated by another (c) insight into oneself and identity formation (d) differentiation of self by expanding one's sense of self (e) authenticity through acknowledging and sharing personal information and (f) catharsis via relief of physiological and psychological pressures of painful experiences (however this may only apply to disclosures of a negative nature). In hindsight it might be that the items on the Flanagan QoL scale do not map well onto these benefits. The benefits listed by Farber (2006) are of a largely psychological nature, whereas quality of life has been categorised

into five dimensions; physical wellbeing, material wellbeing, social wellbeing, emotional wellbeing and development and activity (Felce & Perry, 1995). Of these, only ‘emotional wellbeing’ is associated with the benefits listed by Farber (2006). With that in mind, a different measure of quality of life might show a clearer relationship with self-disclosure to dogs. It may be that confiding in dogs does not lead to an improved quality of life, but instead leads to improved psychological wellbeing. Indeed, there is evidence to suggest that dog-ownership is beneficial to psychological health (Barker and Dawson, 1998, Crowley-Robinson, 1996). Of course, it must also be noted that the SDwDS only asks the question “*How willing* are you to talk to your dog...”, not “*Do you* talk to your dog...” or “*How often* do you talk to your dog...”.

One might contend that the benefits of self-disclosure (as listed by Farber, 2006) cannot apply in such circumstances where disclosures are made to dogs however, where this may be true of (b) validation and affirmation, it can be argued that the remaining benefits can still be felt. By voicing their concerns out loud, the discloser may become desensitised to previously toxic thoughts and feelings (Pennebaker, 2002, as cited in Farber, 2009) and as a result may feel a sense of relief. Certainly there is evidence to suggest that some people do feel as though their dog understands them and interact with them as though they were human (Archer, 1996, Cohen, 2002, Knight & Edwards, 2008); this phenomenon was also reported in the interviews undertaken with female dog-owners in Chapter 3.

“I think she [the dog] thinks she’s human. I do, that’s why we call her the hairy daughter!”

“I think they get your emotions. I do believe that.”

“He’ll [the dog] give me a kiss and tell me it’s all alright...”

The work of Pennebaker and Beall (1986) suggests that health benefits of self-disclosure are still felt even when the disclosure is not discussed but instead made in writing; however research into the benefits of disclosing to a silent recipient (such as a dog) is yet to be established.

Both of the studies in this thesis attracted more female volunteers than male. This could be due to the theme of the studies – self-disclosure – which may be less likely to attract male volunteers since males do not use communication for the same purposes as women (Tannen, 1990). Women use self-disclosure as a coping mechanism in times of stress (McDonald & Korabik, 1991, Taylor *et al*, 2000, Frazier & Burnett, 1994) as a means of obtaining information, preventing conflict (Tannen, 1990) and also as a means of establishing and developing close relationships (Hook *et al*, 2003). Men on the other hand, communicate in order to gain and impart information and do so from a position of preserving and/or asserting their status in the conversation by considering their response in terms of “*does it put me one up or one down?*” (Tannen, 1990). As a result, it may be that women are more willing to talk about their disclosure patterns than men, since they view self-disclosure as more than just a means of giving and receiving information.

LIMITATIONS & STUDY CRITIQUE

The limitations of this study include the potential that the participants of the online survey are not a representative sample of the normal dog-owning population. There is a chance that people willing to answer online surveys are more willing to answer questions and provide information and given the topic of this study (willingness to disclose) this may have biased the sample towards high disclosers.

Similarly, the interviewees in this study volunteered to take part after taking part in the online survey and after hearing about the study through word-of-mouth. As with the participants in the online survey, it is possible that the interviewees do not accurately represent the normal dog-owning population and may be more willing to disclose information.

With regard to the design of the online survey, it was long and although participants were asked at the beginning to allow sufficient time to answer every question, no indication of length was given during the recruitment process. Informing people of how long the survey would take beforehand may have reduced the number of participants that dropped out of the survey before reaching the end. The drop-out rates currently stand at 53.72% for Study 1: Part 1 (Chapter 2), 46.78% for Study 1: Part 2 (Chapter 2) and 59.66% for Study 2 (Chapter 3). These high percentages of participants that attempted the surveys but did not complete them may have an impact on the results by biasing the sample towards high disclosers.

Other limitations include the implications of not knowing the gender of the ‘closest confidante’ in Chapter 3, although this is only of significance if the focus is on the features of the confidante affecting disclosure rather than their functional role as closest confidante compared to the dog. It is also not known to what extent the participants anthropomorphise their dog and their relationship with it. Both of these factors may impact the participants’ willingness to confide in their closest confidante and dog and may be useful areas for future research.

FUTURE DIRECTIONS

Future research in this area should consider utilising a more appropriate measure of QoL, for instance, one that includes items that could potentially be overtly impacted directly by dog-ownership such as being responsible for others and the ability to do things on a whim. Future research should also attempt to reduce the number of items of the SDwDS since the results of the PCA suggests this could be done without compromising the validity of the scale and a shorter survey may result in a higher yield of responses. By making the survey shorter it may also appeal to a wider range of people and thereby increase the likelihood of the sample being a better representation of the normal dog-owning population. A new scale as a result of any such changes

should of course be subjected to rigorous validity testing to ensure that it is still a valid measure of self-disclosure to dogs. Since the literature on the health benefits is not limited to dog-ownership, there is no reason why the SDwDS could not be adapted for use with other pets, allowing the investigation of benefits of self-disclosure to other pets as well, once validation has been established.

CONCLUSION

This thesis has highlighted the need for future research to acknowledge that relationships between dogs and their owners vary between individuals and that the benefits of dog-ownership are largely dependent on the characteristics of the owner and dog as well as the style of their relationship. To fully understand the mechanisms by which dog-ownership is beneficial, future research must acknowledge and control for these factors. Female dog-owners are significantly more willing to confide in their dog about feelings of Depression, Jealousy, Calmness and Apathy and are significantly more willing to confide in their male partners about feelings of Anger and Fear. Female dog-owners are significantly more willing to talk to their dogs than their confidantes about feelings of Depression, Jealousy, Calmness, Apathy and Fear. Quality of life scores appear higher for dog-owners than non-dog-owners however, willingness to talk to one's dog is not predictive of these higher scores. This research has shown that for female dog-owners, self-disclosure to dogs is not an uncommon practice and although we have provided information on the disclosure patterns of dog-owners, the benefits of self-disclosure to dogs has yet to be determined.

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APPENDICES

Appendix 1: Full methodology of systematic literature review

Appendix 1a: Full list of terms searched for in the systematic literature review

- Health benefits of pet ownership
- Health benefits of dog ownership
- Benefits of pet ownership
- Benefits of dog ownership
- Health benefits of self-disclosure to pets
- Health benefits of self-disclosure to animals
- Health benefits of self-disclosure to dogs
- Health benefits of talking to pets
- Health benefits of talking to animals
- Health benefits of talking to dogs
- Benefits of interacting with pets
- Benefits of interacting with animals
- Benefits of interacting with dogs
- Benefits of intimacy with pets
- “self-disclosure” “pets”
- “self-disclosure” “animals”
- “self-disclosure” “dogs”
- Self-disclosure with pets
- Self-disclosure with animals
- Self-disclosure with dogs
- Self-disclosure to pets
- Self-disclosure to animals
- Self-disclosure to dogs
- Talking to pets
- Talking to animals
- Talking to dogs
- Talking with pets
- Talking with animals
- Talking with dogs
- Pets as confidantes
- Dog owners talk to their dogs
- Benefits of intimacy with animals
- Benefits of intimacy with dogs
- Benefits of intimate relationships with pets
- Benefits of intimate relationships with animals
- Benefits of intimate relationships with dogs
- Animal assisted therapy
- Animal assisted intervention

Appendix 1b: Methodology

An initial 816 articles, books and chapters were identified before duplicates were removed (Figure 1). Only peer reviewed articles written in the English language were accepted in the first instance with no other exclusion criteria applied at this stage. The reference lists of the identified papers were searched for any additional papers that had not yet been identified and the papers were classified according to the level of evidence their methodology provided (Melnik & Fineout-Overholt, 2005).

This left 295 papers. The inclusion criteria were refined to exclude qualitative papers, reviews and any papers that did not measure a quantifiable health benefit. This left 202 papers. The inclusion criteria were further refined to empirical studies that measured a quantifiable health benefit from one's own pet dog, in the home setting (living at home, not in a care facility), in the absence of clinical conditions. To do this, the 202 titles were independently colour coded by two reviewers (AEW and DM) using a traffic-light system to categorise the papers into 'exclude', 'consider' and 'include' groups. The "consider" papers and discrepancies were discussed and a consensus reached on the inclusion / exclusion of these papers, reducing the chance of any relevant papers being excluded and improving the reliability of included items. This resulted in 34 full texts that were analysed for eligibility, of which 15 were rejected due to the data on dogs not being distinguished from other pets and one that was rejected as it was a duplicate sample. This left 19 studies that were included in the final qualitative analysis in order to address the question 'What are the health benefits of dog-ownership to normally-functioning owners?'

Appendix 1c: Data Extraction & Analysis

The objectives of this review were to:

1. Identify relationship dimensions that have been included
2. Identify owner and dog characteristics that have been considered as potentially affecting the interaction and thereby potentially affecting the benefit too
3. Identify the benefits of these dimensions of the relationship
4. Assess the robustness of the current evidence for these effects

In order to identify which relationship dimensions have been studied the data items extracted were any actions that might be used to characterise a dimension of the relationship using the framework of Mills *et al* (2014), both tangible (e.g. petting, playing, walking the dog) and intangible (e.g. considered the dog a family member, highly attached to the dog). Data were therefore classified into being relevant to one or more of the eight dimensions, described earlier.

Owner characteristics were classified as follows:

1. Gender
2. Age
3. Country of residence
4. Social status (including level of education, income and marital status)

Dog characteristics were classified as follows:

1. Gender (including whether or not they had been castrated)
2. Age
3. Breed
4. Size

The data relating to the benefits of the dog-owner relationship were classified as:

1. Dependent variables (e.g. heart rate, blood pressure, level of stress) and how were they measured (e.g. heart rate monitor, self-report)
2. Author reported findings
3. Whether or not the 'pet effect' was seen, i.e. whether interacting with one's dog affected what was being measured in either a positive or negative way (e.g. caused an increase or decrease in heart rate, blood pressure etc.)

To achieve the fourth objective, the papers would be critiqued throughout the above mentioned evaluations with regard to study design and the level of evidence at which they were classified.

Appendix 2: Owner characteristics that were provided by the 19 papers in the systematic literature review

Appendix 2: Owner characteristics that were provided by the papers in this review					
Paper	Description of sample				Reference
	Gender	Age (years)	Country of Residence	Social Status	
Presence of Human Friends and Pet Dogs as Moderators of Autonomic Responses to Stress in Women.	<i>n</i> = 45 All female sample	27 - 55	USA	Info on nationality and health	Allen <i>et al</i> , 1991
Physiological Effects of Human/Companion Animal Bonding.	<i>n</i> = 21 19 female, 5 male	24 - 74	NA	NA	Baun & Bergstrom, 1984
Humans' Bonding with their Companion Dogs: Cardiovascular Benefits during and after Stress.	<i>n</i> = 159, 75.5% female	Mean 30	USA	Info on nationality and income	Campo, & Uchino, 2013
Psychological Effects of Dog Ownership: Role Strain, Role Enhancement, and Depression.	<i>n</i> = 201 70% female	19 - 94	USA	Info on nationality, marital status and level of education	Clark Cline, 2010
An Examination of the Relations between Social Support, Anthropomorphism and Stress among Dog Owners.	<i>n</i> = 94 61 female, 33 male	Mean 42.9	Canada	Info on marital status and level of education	Duvall Antonacopoulos, & Pychyl, 2008
An Examination of the Potential Role of Pet Ownership, Human Social Support and Pet Attachment in the Psychological Health of Individuals Living Alone.	<i>n</i> = 132 73.4% female, 26.6% male	22 – 78	Canada	Info on level of education and income	Duvall Antonacopoulos, & Pychyl, 2010a
The Possible Role of Companion-Animal Anthropomorphism and Social Support in the Physical and Psychological Health of Dog Guardians.	<i>n</i> = 203 183 females, 20 males	18 – 62	Canada	Info on marital status, level of education and income	Duvall Antonacopoulos, & Pychyl, 2010b
A Longitudinal Test of the Belief that Companion Animal Ownership Can Help Reduce Loneliness.	<i>n</i> = 59 43 female, 15 male 1 unspecified	Mean 39.45	UK	NA	Gilbey <i>et al</i> 2007

Benefits of dog ownership: Comparative study of equivalent samples.	<i>n</i> = 602 64.62% female 35.38% male	18 – 68	Mexico	NA	González Ramírez, & Landero Hernández, 2014
Does Pet Dog Presence Reduce Human Cardiovascular Responses To Stress?	<i>n</i> = 32 All male sample	NA	NA	Info on health and level of education	Grossberg & Vormbrock, 1988
Short-Term Interaction between Dogs and Their Owners: Effects on Oxytocin, Cortisol, Insulin and Heart Rate—An Exploratory Study.	<i>n</i> = 30 All female sample	30+	Sweden	Info on health	Handlin <i>et al</i> , 2011
Physiological Effects of Petting a Companion Animal.	<i>n</i> = 20 16 female 4 male	9 – 58	NA	NA	Jenkins, 1986
An Examination of Changes in Oxytocin Levels in Men and Women Before and After Interaction with a Bonded Dog	<i>n</i> = 20 10 female 10 male	22 – 58	USA	Info on nationality and marital status	Miller <i>et al</i> , 2009
The Role of Phenylethylamine During Positive Human-Dog Interaction	<i>n</i> = 18 10 female, 8 male	19 – 55	NA	NA	Odendaal & Lehmann, 2000
Beneficial effects of pet ownership on some aspects of human health and behaviour.	<i>n</i> = 71 Gender not specified	NA	NA	NA	Serpell, 1991
Friends With Benefits: On the Positive Consequences of Pet Ownership.	<i>n</i> = 56 91% female, 9% male	Mean 42	NA	Info on income and owner personality	Shoda <i>et al</i> , 2011
Tails of Laughter: A Pilot Study Examining the Relationship between Companion Animal Guardianship (Pet Ownership) and Laughter.	<i>n</i> = 95 64 female, 31 male	18+	NA	NA	Valeri, 2006
Pet Ownership, Type of Pet and Socio-Emotional Development of School Children.	<i>n</i> = 826 425 female, 401 male	10 – 15	Republic of Croatia	NA	Vidović <i>et al</i> , 1999
Loneliness and Pet Ownership Among Single Women.	<i>n</i> = 148 All female sample	21 – 53	USA	Info on living situation and level of education	Zasloff & Kidd, 1994

Appendix 3: Items of the Emotional Self-Disclosure Scale (Snell *et al*, 1988)

1 = Not at all willing to confide

2 = Slightly willing to confide

3 = Moderately willing to confide

4 = Almost totally willing to confide

5 = Totally willing to confide

Subscale	Items
1. Depression	1. Times when you felt depressed
	9. Times when you felt discouraged
	17. Times when you felt pessimistic
	25. Times when you felt sad
	33. Times when you felt unhappy
2. Happiness	2. Times when you felt happy
	10. Times when you felt cheerful
	18. Times when you felt joyous
	26. Times when you felt delighted
	34. Times when you felt pleased
3. Jealousy	3. Times when you felt jealous
	11. Times when you felt possessive
	19. Times when you felt envious
	27. Times when you felt suspicious
	35. Times when you felt resentful
4. Anxiety	4. Times when you felt anxious
	12. Times when you felt troubled
	20. Times when you felt worried
	28. Times when you felt uneasy
	36. Times when you felt flustered
5. Anger	5. Times when you felt angry
	13. Times when you felt infuriated
	21. Times when you felt irritated
	29. Times when you felt hostile
	37. Times when you felt enraged
6. Calmness	6. Times when you felt calm
	14. Times when you felt quiet
	22. Times when you felt serene
	30. Times when you felt tranquil
	38. Times when you felt relaxed
7. Apathy	7. Times when you felt apathetic
	15. Times when you felt indifferent
	23. Times when you felt numb
	31. Times when you felt unfeeling
	39. Times when you felt detached
8. Fear	8. Times when you felt afraid
	16. Times when you felt fearful
	24. Times when you felt frightened
	32. Times when you felt scared
	40. Times when you felt alarmed

Appendix 4: The Self-Disclosure with Dogs Survey (www.surveymonkey.com/s/self-disclosurewithdogs)

The purpose of this survey is to assess your tendency to reveal certain thoughts, feelings and emotions to two different individuals; your long term human partner/ spouse versus your dog.

We are looking for people who are currently married, in a civil-partnership or are in a stable, long-term relationship and own at least one dog.

Both your human relationship and dog-ownership should have lasted at least six months.

If you have owned more than one dog for more than six months, then please consider the dog you are closest to, for the purposes of the survey.

Please do not complete the survey more than once.

All responses are anonymised. The information you provide will only be used by the researchers involved in the present study and will not be passed on to a third party.

If you are willing to retake the survey in 8 weeks for reliability purposes please provide your email address in the space provided so that we can invite to complete the survey again. If you would prefer not to then leave the space blank.

INSTRUCTIONS: Below are 40 items concerned with the types of feelings and emotions that people may experience at one time or another in their life. This survey is concerned with the extent to which you are willing to confide in your long-term human partner or your dog about these feelings. The order in which you respond (ie: human partner first/ dog first) is entirely up to you, but we do ask that you follow the order in which the questions are asked.

You should indicate how willing you are to disclose each specific event using the following scale to indicate which letter (A, B, C, D, OR E) corresponds to your response:

(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:

(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:

(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:

(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:

(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:

Thank you for your participation in this survey.

* 1. Please indicate your consent to take part in the survey by placing an "x" in the box below.

I am over 18 years of age. I have read and understood the nature of this study and am giving my voluntary consent to take part.

☐

The following questions are about you:

* 2. What is your gender?

- ☐ Male
- ☐ Female
- ☐ Would rather not say

* 3. What is your age?

- ☐ 16 - 25
- ☐ 26 - 35
- ☐ 36 - 45
- ☐ 46 - 55
- ☐ 56 - 65
- ☐ 66 - 75
- ☐ 75 +
- ☐ Would rather not say

* 4. What is your usual country of residence? If you would rather not say, please enter "N/A" in the box provided:

The following questions are about your human partner:

* 5. What gender is your human partner?

- ☐ Male
- ☐ Female
- ☐ Would rather not say

* 6. What age is your human partner?

- ☐ 16 - 25
- ☐ 26 - 35
- ☐ 36 - 45
- ☐ 46 - 55
- ☐ 56 - 65
- ☐ 66 - 75
- ☐ 75+
- ☐ Would rather not say

* 7. How long have you been in a close relationship with your human partner (including time before marriage and time as close friends) ?

- ☐ Less than 1 year
- ☐ 1 - 5 years
- ☐ 6 - 10 years
- ☐ 11 - 15 years
- ☐ 16 - 20 years
- ☐ 21 - 25 years
- ☐ 26 - 30 years
- ☐ 31 - 35 years
- ☐ 36 - 40 years
- ☐ 41 - 45 years
- ☐ 46 - 50 years
- ☐ 51+ years
- ☐ Would rather not say

The following questions are about your dog:

* 8. What gender is your dog?

- ☐ Male, neutered
- ☐ Male, entire
- ☐ Female, spayed
- ☐ Female, entire
- ☐ Would rather not say

* 9. What age is your dog?

- ☐ Less than 1 year
- ☐ 1 - 5
- ☐ 6 - 10
- ☐ 11 - 15
- ☐ 15+
- ☐ Would rather not say

* 10. How long have you owned this dog?

- ☐ Less than 1 year
- ☐ 1 - 5 years
- ☐ 6 - 10 years
- ☐ 11 - 15 years
- ☐ 15+ years
- ☐ Would rather not say

11. Are you willing to take part in our follow-up survey in about 8 weeks time? If you are selected, you will be asked to complete the same survey again for reliability purposes. If you are willing, please provide us with your email address. If you would rather not, then leave the box blank.

Start of questions:

* 12. How willing are you to confide in the following individuals about "Times when you felt depressed"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 13. How willing are you to confide in the following individuals about "Times when you felt happy"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 14. How willing are you to confide in the following individuals about "Times when you felt jealous"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 15. How willing are you to confide in the following individuals about "Times when you felt anxious"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 16. How willing are you to confide in the following individuals about "Times when you felt angry"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 17. How willing are you to confide in the following individuals about "Times when you felt calm"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 18. How willing are you to confide in the following individuals about "Times when you felt apathetic"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 19. How willing are you to confide in the following individuals about "Times when you felt afraid"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 20. How willing are you to confide in the following individuals about "Times when you felt discouraged"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 21. How willing are you to confide in the following individuals about "Times when you felt cheerful"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 22. How willing are you to confide in the following individuals about "Times when you felt possessive"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 23. How willing are you to confide in the following individuals about "Times when you felt troubled"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 24. How willing are you to confide in the following individuals about "Times when you felt infuriated"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 25. How willing are you to confide in the following individuals about "Times when you felt quiet"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 26. How willing are you to confide in the following individuals about "Times when you felt indifferent"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 27. How willing are you to confide in the following individuals about "Times when you felt fearful"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 28. How willing are you to confide in the following individuals about "Times when you felt pessimistic"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 29. How willing are you to confide in the following individuals about "Times when you felt joyous"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 30. How willing are you to confide in the following individuals about "Times when you felt envious"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 31. How willing are you to confide in the following individuals about "Times when you felt worried"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 32. How willing are you to confide in the following individuals about "Times when you felt irritated"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 33. How willing are you to confide in the following individuals about "Times when you felt serene"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 34. How willing are you to confide in the following individuals about "Times when you felt numb"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 35. How willing are you to confide in the following individuals about "Times when you felt frightened"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 36. How willing are you to confide in the following individuals about "Times when you felt sad"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 37. How willing are you to confide in the following individuals about "Times when you felt delighted"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 38. How willing are you to confide in the following individuals about "Times when you felt suspicious"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 39. How willing are you to confide in the following individuals about "Times when you felt uneasy"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 40. How willing are you to confide in the following individuals about "Times when you felt hostile"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 41. How willing are you to confide in the following individuals about "Times when you felt tranquil"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 42. How willing are you to confide in the following individuals about "Times when you felt unfeeling"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 43. How willing are you to confide in the following individuals about "Times when you felt scared"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 44. How willing are you to confide in the following individuals about "Times when you felt unhappy"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 45. How willing are you to confide in the following individuals about "Times when you felt pleased"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 46. How willing are you to confide in the following individuals about "Times when you felt resentful"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 47. How willing are you to confide in the following individuals about "Times when you felt flustered"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 48. How willing are you to confide in the following individuals about "Times when you felt enraged"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 49. How willing are you to confide in the following individuals about "Times when you felt relaxed"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 50. How willing are you to confide in the following individuals about "Times when you felt detached"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 51. How willing are you to confide in the following individuals about "Times when you felt alarmed"?

	Would rather not say. Skip to next question.	(A) I AM NOT AT ALL WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(B) I AM SLIGHTLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(C) I AM MODERATELY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:	(D) I AM ALMOST TOTALLY WILLING CONFIDE IN ____ ABOUT THIS TOPIC:	(E) I AM TOTALLY WILLING TO CONFIDE IN ____ ABOUT THIS TOPIC:
Human Partner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dog	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of survey.

Thank you very much for participating.

Appendix 5: Poster used to advertise survey

Do You Own A Dog?

I'm looking for male volunteers to take part in a survey, answering how willing you would be to confide in your dog vs your partner about different emotions.

If you are over 18, have been in a relationship for 6 months and have owned a dog for 6 months then please take part by following these links!

<https://www.surveymonkey.com/s/self-disclosurewithdogs>



Appendix 6: Demographic information on participants from Chapter 2, Study 1

Appendix 6: Information on participants <i>n</i> = 143 heterosexual, female dog owners		
Demographic Information	Categories	<i>n</i>
Region of Residence	Africa	1
	Europe	99
	North America	28
	Oceania	9
	South America	5
	Did not answer	1
Age	16 - 25 years	31
	26 - 35 years	50
	36 - 45 years	28
	46 - 55 years	26
	56 - 65 years	8
Length of Relationship with Partner	Less than 1 year	4
	1 - 5 years	37
	6 - 10 years	39
	11 - 15 years	23
	16 - 20 years	12
	21 - 25 years	14
	26 - 30 years	6
	31 - 35 years	6
	36 - 40 years	2
Length of Ownership of Dog	Less than 1 year	10
	1 - 5 years	67
	6 - 10 years	50
	11 - 15 years	16
Dog Gender	Male, entire	23
	Male, neutered	53
	Female, entire	10
	Female, neutered	57

Appendix 7: Demographic information on participants from Chapter 2, Study 2

Appendix 7: Information on Participants <i>n</i> = 74 heterosexual, male dog-owners <i>n</i> = 232 heterosexual, female dog-owners				
	Males		Females	
Demographic Information	Categories	<i>n</i>	Categories	<i>n</i>
Region	Europe	52	Africa	1
	North America	7	Europe	153
	South America	1	North America	59
	Did not answer	14	Oceania	12
			South America	5
			Did not answer	2
Age	16 – 25 years	28	16-25 years	50
	26 - 45 years	14	26-35 years	77
	46 - 75 years	32	36-45 years	56
			45+ years	49
Length of Relationship with Partner	6 months - 5 years	26	6 months - 5 years	65
	6 - 15 years	22	6 - 10 years	63
	16+ years	26	11 - 20 years	54
			21+ years	50
Length of Ownership of Dog	6 months – 5 years	53	Less than 1 year	16
	6+ years	21	1 - 5 years	121
			6 - 10 years	74
			11+ years	21
Dog gender	Male, entire	14		35
	Male, neutered	29		100
	Female, entire	11		16
	Female, neutered	20		81

Appendix 8: Kruskal-Wallis Tables

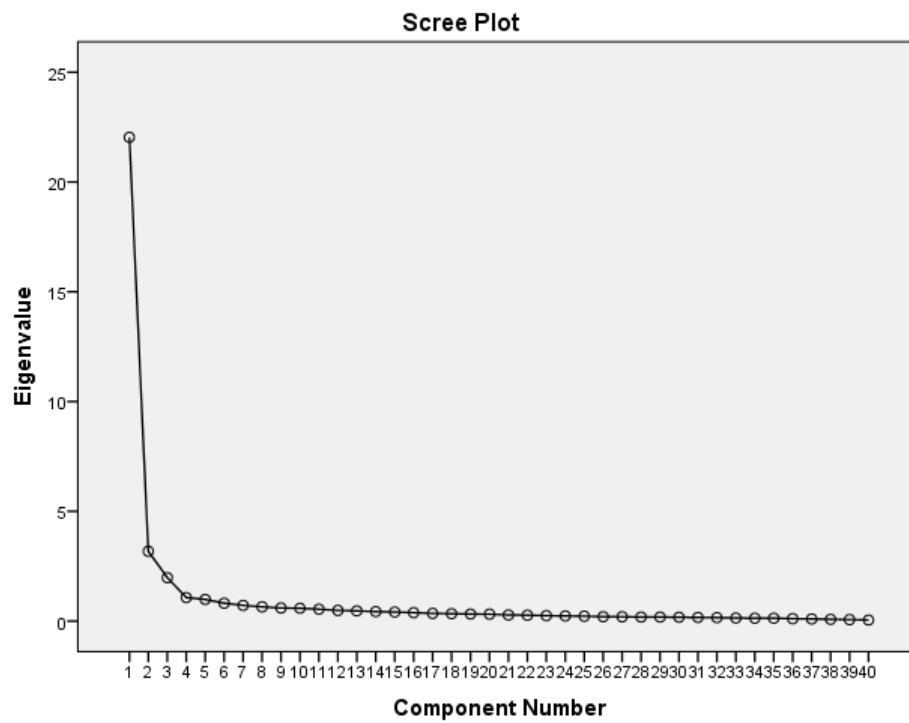
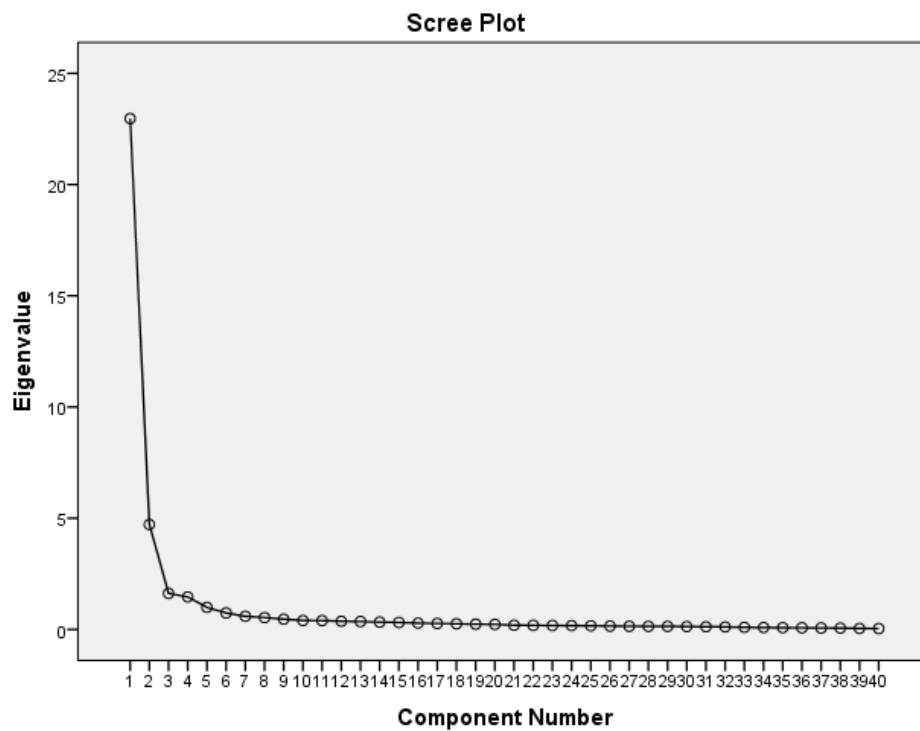
Appendix 8a: Kruskal-Wallis Effect of Participant Age on Willingness to Confide in Partner and Effect of Participant Age on Willingness to Confide in Dog			
Subscale	Disclosure Recipient	<i>p</i> value Female Sample (<i>n</i> = 232)	<i>p</i> value Male Sample (<i>n</i> = 74)
Depression	Partner	.745	.569
	Dog	.713	.892
Happiness	Partner	.683	.675
	Dog	.619	.288
Jealousy	Partner	.227	.538
	Dog	.427	.908
Anxiety	Partner	.292	.744
	Dog	.548	.837
Anger	Partner	.213	.868
	Dog	.341	.795
Calmness	Partner	.910	.953
	Dog	.823	.827
Apathy	Partner	.578	.445
	Dog	.622	.820
Fear	Partner	.147	.380
	Dog	.475	.690

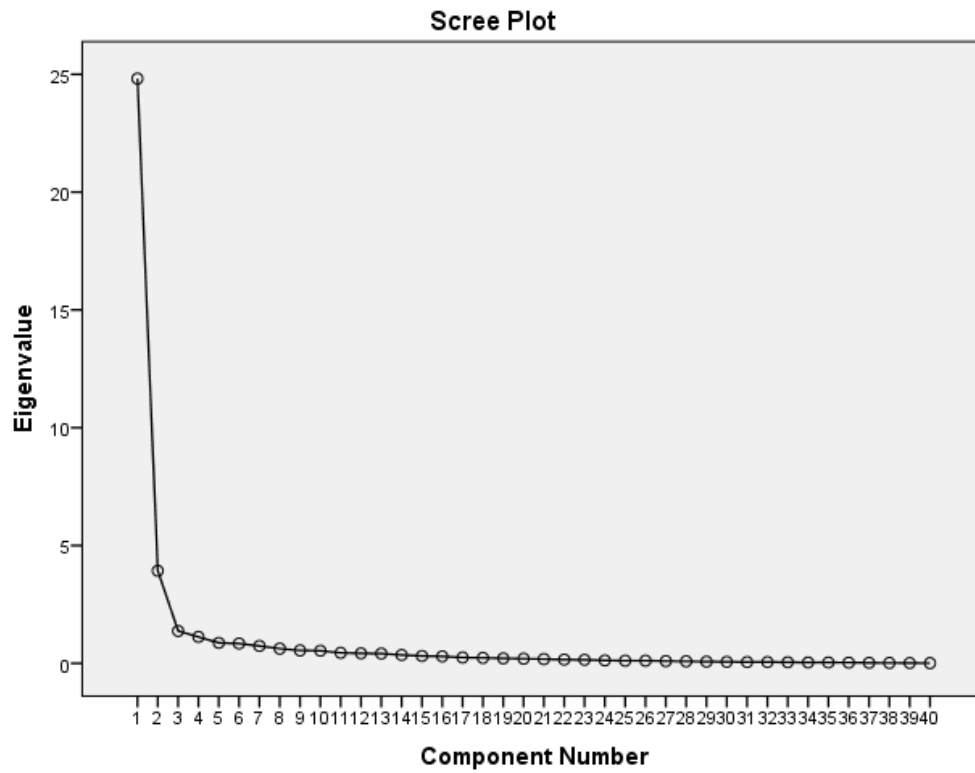
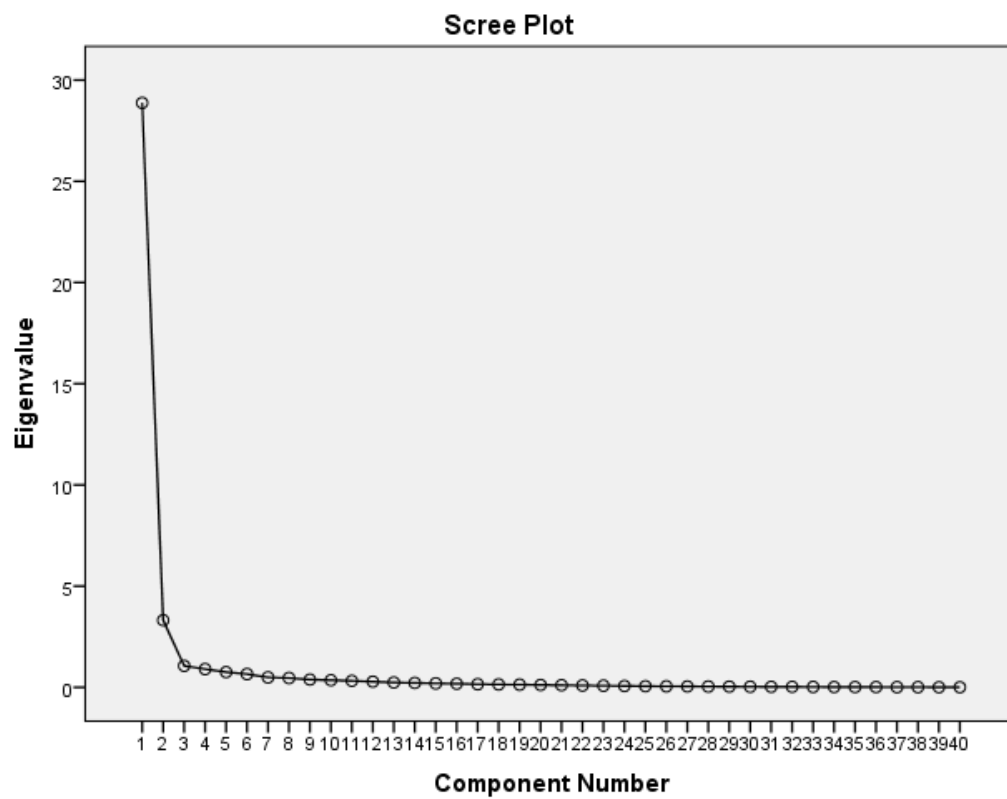
Appendix 8b: Kruskal-Wallis Effect of Participant Usual Country of Residence on Willingness to Confide in Partner and Effect of Participant Usual Country of Residence on Willingness to Confide in Dog			
Subscale	Disclosure Recipient	<i>p</i> value Female Sample (<i>n</i> = 232)	<i>p</i> value Male Sample (<i>n</i> = 74)
Depression	Partner	.111	.083
	Dog	.140	.009
Happiness	Partner	.858	.401
	Dog	.935	.028
Jealousy	Partner	.163	.129
	Dog	.230	.010
Anxiety	Partner	.287	.084
	Dog	.099	.009
Anger	Partner	.284	.155
	Dog	.442	.065
Calmness	Partner	.415	.203
	Dog	.382	.027
Apathy	Partner	.110	.037
	Dog	.433	.019
Fear	Partner	.097	.400
	Dog	.099	.046

Appendix 8c: Kruskal-Wallis Effect of Dog Gender on Willingness to Confide in Partner and Effect of Dog Gender on Willingness to Confide in Dog			
Subscale	Disclosure Recipient	<i>p</i> value Female Sample (<i>n</i> = 232)	<i>p</i> value Male Sample (<i>n</i> = 74)
Depression	Partner	.238	.997
	Dog	.557	.961
Happiness	Partner	.211	.847
	Dog	.892	.943
Jealousy	Partner	.355	.524
	Dog	.769	.950
Anxiety	Partner	.192	.789
	Dog	.613	.940
Anger	Partner	.039	.377
	Dog	.951	.842
Calmness	Partner	.950	.870
	Dog	.990	.995
Apathy	Partner	.269	.780
	Dog	.764	.747
Fear	Partner	.105	.866
	Dog	.365	.948

Appendix 8d: Kruskal-Wallis Effect of Length of Dog-Ownership on Willingness to Confide in Partner			
Subscale	Disclosure Recipient	<i>p</i> value Female Sample (<i>n</i> = 232)	<i>p</i> value Male Sample (<i>n</i> = 74)
Depression	Partner	.961	.062
Happiness	Partner	.697	.621
Jealousy	Partner	.579	.146
Anxiety	Partner	.864	.199
Anger	Partner	.907	.251
Calmness	Partner	.707	.243
Apathy	Partner	.794	.029
Fear	Partner	.791	.066

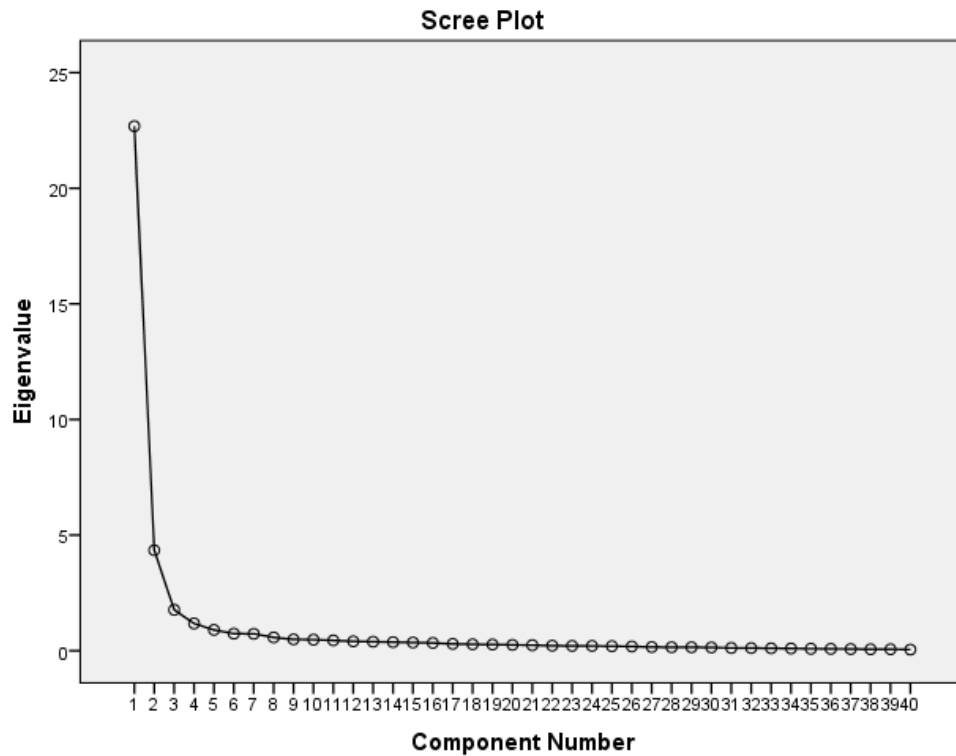
Appendix 8e: Kruskal-Wallis Effect of Length of Relationship with Partner on Willingness to Confide in Dog (<i>p</i> = 0.00625)			
Subscale	Disclosure Recipient	<i>p</i> value Female Sample (<i>n</i> = 232)	<i>p</i> value Male Sample (<i>n</i> = 74)
Depression	Dog	.187	.930
Happiness	Dog	.156	.157
Jealousy	Dog	.490	.830
Anxiety	Dog	.128	.729
Anger	Dog	.373	.805
Calmness	Dog	.308	.264
Apathy	Dog	.163	.916
Fear	Dog	.268	.718

Appendix 9: Scree Plots from Principal Component Analysis (PCA)**Appendix 9a: PCA Scree Plot from Female ($n = 232$) Willingness to Confide in Partner Data****Appendix 9b: PCA Scree Plot from Female ($n = 232$) Willingness to Confide in Dog Data**

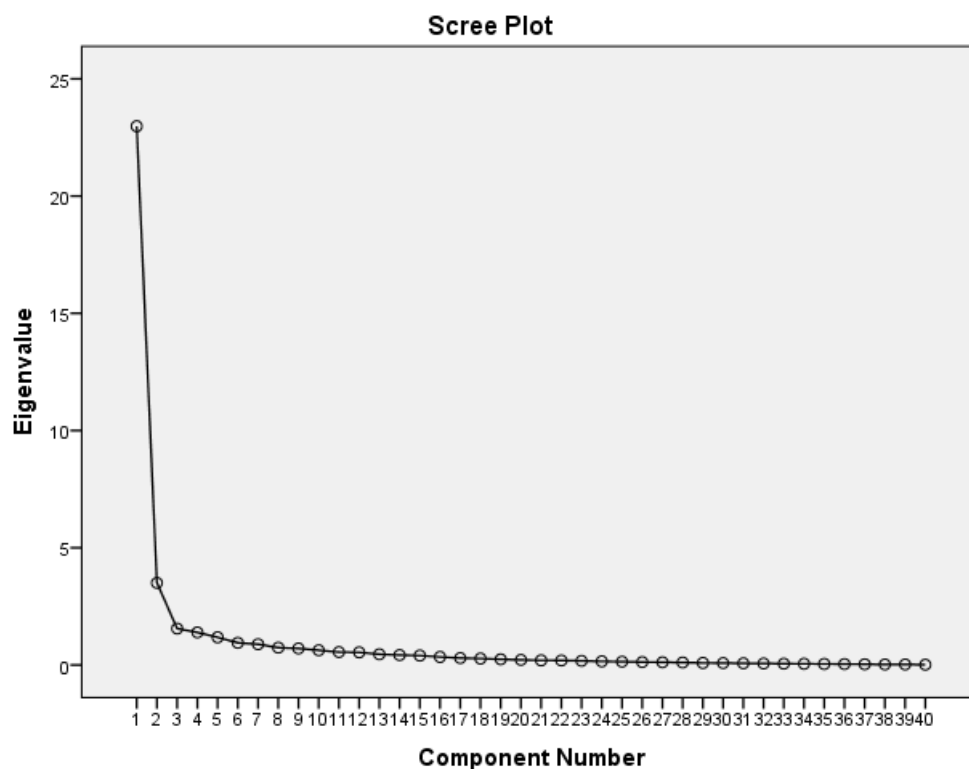
Appendix 9c: PCA Scree Plot from Male ($n = 74$) Willingness to Confide in Partner Data**Appendix 9d: PCA Scree Plot from Male ($n = 74$) Willingness to Confide in Dog Data**

Appendix 10: PCA Scree Plots from Difference Scores

Appendix 10a: PCA Scree Plot from Female ($n = 232$) Difference Score Data (willingness to confide in partner – willingness to confide in dog)



Appendix 10b: PCA Scree Plot from Male ($n = 74$) Difference Score Data (willingness to confide in partner – willingness to confide in dog)



Appendix 11: The ‘Differences between Dog-Owners and Non-Dog-Owners’ Survey (www.surveymonkey.com/r/aislinn)

* 1. Hello and thank you very much for taking part in this new field of research. Your responses are hugely appreciated!

At the University of Lincoln, we are looking at how the lives and behaviours of dog-owners differ from people who don't own dogs. By completing this survey you are helping us to better understand the relationship between pets and their owners - but you don't have to be a pet-owner to take part since we want to compare pet-owners to non-owners.

In an attempt to boost responses please help us by inviting a friend or two to take part as well - the more the merrier!

This survey is made up of 3 different sections. The first simply asks for some background information from you. The second will ask you some questions about how satisfied you are with various aspects of your life. The third section will ask you about the people you like to talk to about various topics.

In order to be eligible for this survey you must be over 18 years old and have been in a stable relationship with the same partner for at least 6 months. Some of the questions are directed at dog owners. You do not need to be a dog owner to take part in this survey but if you are, then please answer in the 'Dog Owner' row provided in Section C. Further instructions will be provided throughout the survey. In order to qualify as a dog owner for this survey, you must have owned your dog for at least 6 months. If you own more than one dog, then please answer for the dog you feel closest to.

All information provided by you is anonymous and will only be used by the researchers in this project. No information will be passed on to a third party and all answers will be stored securely.

This survey should take between 20 and 30 minutes to complete, so please take your time, read each question carefully and do not rush.

Your participation is completely voluntary and you may leave the survey at any point if you do not wish to continue.

Please indicate your consent to take part in the survey by placing an "x" in the box below.

I am over 18 years of age. I have read and understood the nature of this study and am giving my voluntary consent to take part.

☐

2. Are you willing to take part in our follow-up survey in about 8 weeks time? If you are selected, you will be asked to complete the same survey again for reliability purposes. If you are willing, please provide us with your email address. If you would rather not, then leave the box blank.

Section A - These questions are about you

* 3. What is your gender?

- ☐ Male
- ☐ Female

* 4. What is your usual country of residence?

* 5. What is your age?

- ☐ 16 - 25
- ☐ 26 - 35
- ☐ 36 - 45
- ☐ 46 - 55
- ☐ 56 - 65
- ☐ 66 - 75
- ☐ 75 +

Section A continued...

* 6. What gender is your partner?

- ☐ Male
- ☐ Female

* 7. How long have you been in a close relationship with your partner (including time before marriage and time as close friends) ?

- ☐ Less than 1 year
- ☐ 1 - 5 years
- ☐ 6 - 10 years
- ☐ 11 - 15 years
- ☐ 16 - 20 years
- ☐ 21 - 25 years
- ☐ 26 - 30 years
- ☐ 31 - 35 years
- ☐ 36 - 40 years
- ☐ 41 - 45 years
- ☐ 46 - 50 years
- ☐ 51+ years

Section A continued...

* 8. Do you own a pet?

- ☐ Dog(s) only
- ☐ Dog(s) and other pet(s)
- ☐ Other pet(s) only
- ☐ No

* 9. Pet owners only:

Which pet do you consider yourself to be closest to?

- ☐ Non-owner - skip to next question
- ☐ I am a dog owner only - I am close to my dog(s)
- ☐ I am a dog owner only - I am not particularly close to my dog(s)
- ☐ I am a dog and other pet owner - I am closest to my dog(s)
- ☐ I am a dog and other pet owner - I am closest to my other pet(s)
- ☐ I am a dog and other pet owner - I am equally close to all my pets
- ☐ I am a dog and other pet owner - I am not particularly close to any of my pets
- ☐ I am an owner of other pets only - I am close to my pet(s)
- ☐ I am an owner of other pets only - I am not particularly close to my pet(s)

Section A continued...

These questions are for dog owners only. If you are not a dog owner, please answer NA.

* 10. What gender is your dog?

- ☐ Male, neutered
- ☐ Male, entire
- ☐ Female, spayed
- ☐ Female, entire
- ☐ NA

* 11. What age is your dog?

- ☐ Less than 1 year
- ☐ 1 - 5
- ☐ 6 - 10
- ☐ 11 - 15
- ☐ 15+
- ☐ NA

* 12. How long have you owned this dog?

- ☐ Less than 1 year
- ☐ 1 - 5 years
- ☐ 6 - 10 years
- ☐ 11 - 15 years
- ☐ 15+ years
- ☐ NA

Section B - The questions are about how satisfied you are with various aspects of your everyday life

Please read each item and select the number that best describes how satisfied you are at this time.

Please answer each item even if you do not currently participate in an activity or have a relationship.

You can be satisfied or dissatisfied with not doing the activity or having the relationship.

Section B - 1/16

* 13. How satisfied are you with:

"Material comforts home, food, conveniences, financial security?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Mostly Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 2/16

* 14. How satisfied are you with:

"Health - being physically fit and vigorous?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 3/16

* 15. How satisfied are you with:

"Relationships with parents, siblings & other relatives- communicating, visiting, helping?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 4/16

* 16. How satisfied are you with:

"Having and rearing children?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 5/16

* 17. How satisfied are you with:

"Close relationships with spouse or significant other?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 6/16

* 18. How satisfied are you with:

"Close friends?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 7/16

* 19. How satisfied are you with:

"Helping and encouraging others, volunteering, giving advice?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 8/16

* 20. How satisfied are you with:

"Participating in organisations and public affairs?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 9/16

* 21. How satisfied are you with:

"Learning- attending school, improving understanding, getting additional knowledge?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 10/16

* 22. How satisfied are you with:

"Understanding yourself - knowing your assets and limitations - knowing what life is about?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 11/16

* 23. How satisfied are you with:

"Work - job or in home?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 12/16

* 24. How satisfied are you with:

"Expressing yourself creatively?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 13/16

* 25. How satisfied are you with:

"Socializing - meeting other people, doing things, parties, etc?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 14/16

* 26. How satisfied are you with:

"Reading, listening to music, or observing entertainment?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 15/16

* 27. How satisfied are you with:

"Participating in active recreation?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section B - 16/16

* 28. How satisfied are you with:

"Independence, doing for yourself?"

Remember, you can be satisfied or dissatisfied with *not* doing the activity or having the relationship.

- ☐ 7 - Delighted
- ☐ 6 - Pleased
- ☐ 5 - Mostly Satisfied
- ☐ 4 - Mixed
- ☐ 3 - Dissatisfied
- ☐ 2 - Unhappy
- ☐ 1 - Terrible

Section C - Instructions

The following questions are about who you like to talk to about various topics.

For this section we will ask you to either identify yourself as a 'Dog owner' or a 'Non dog-owner'.

You will be asked how willing you are to talk about various topics to different people; your partner, your closest human confidante and (dog owners only) your dog. Your human confidante may be anyone of your choosing such as a friend or sibling but must not be your partner.

Your answers to the questions are on a scale of 1-5, with 1 being Not at all willing and 5 being Completely willing.

Dog Owners: In order to qualify as a dog owner for this survey, you must have owned your dog for at least 6 months. If you own more than one dog then please answer for the dog you feel closest to.

Non dog-owners: Please answer NA in the 'dog' column for each question.

Please try and answer every question and thank you again for your participation.

Section C - 1/40

* 29. How willing would you be to talk to the following individuals about "Times when you felt depressed"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 30. How willing would you be to talk to the following individuals about "Times when you felt happy"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 31. How willing would you be to talk to the following individuals about "Times when you felt jealous"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 32. How willing would you be to talk to the following individuals about "Times when you felt anxious"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section C - 5/40

* 33. How willing would you be to talk to the following individuals about "Times when you felt angry"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 34. How willing would you be to talk to the following individuals about "Times when you felt calm"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 35. How willing would you be to talk to the following individuals about "Times when you felt apathetic"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 36. How willing would you be to talk to the following individuals about "Times when you felt afraid?"

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 37. How willing would you be to talk to the following individuals about "Times when you felt discouraged"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog-owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section C - 10/40

* 38. How willing would you be to talk to the following individuals about "Times when you felt cheerful"?

	Partner	Confidante	Dog
Non-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 39. How willing would you be to talk to the following individuals about "Times when you felt possessive"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 40. How willing would you be to talk to the following individuals about "Times when you felt troubled"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 41. How willing would you be to talk to the following individuals about "Time when you felt infuriated"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 42. How willing would you be to talk to the following individuals about "Times when you felt quiet"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section C - 15/40

* 43. How willing would you be to talk to the following individuals about "Times when you felt indifferent"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 44. How willing would you be to talk to the following individuals about "Times when you felt fearful"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 45. How willing would you be to talk to the following individuals about "Times when you felt pessimistic"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 46. How willing would you be to talk to the following individuals about "Times when you felt joyous"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 47. How willing would you be to talk to the following individuals about "Times when you felt envious"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section C - 20/40

* 48. How willing would you be to talk to the following individuals about "Times when you felt worried"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 49. How willing would you be to talk to the following individuals about "Times when you felt irritated"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 50. How willing would you be to talk to the following individuals about "Times when you felt serene"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 51. How willing would you be to talk to the following individuals about "Times when you felt numb"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 52. How willing would you be to talk to the following individuals about "Times when you felt frightened"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section C - 25/40

* 53. How willing would you be to talk to the following individuals about "Times when you felt sad"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 54. How willing would you be to talk to the following individuals about "Times when you felt delighted"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 55. How willing would you be to talk to the following individuals about "Times when you felt suspicious"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 56. How willing would you be to talk to the following individuals about "Times when you felt uneasy"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 57. How willing would you be to talk to the following individuals about "Times when you felt hostile"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section C - 30/40

* 58. How willing would you be to talk to the following individuals about "Times when you felt tranquil"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 59. How willing would you be to talk to the following individuals about "Times when you felt unfeeling"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 60. How willing would you be to talk to the following individuals about "Times when you felt scared"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 61. How willing would you be to talk to the following individuals about "Times when you felt unhappy"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 62. How willing would you be to talk to the following individuals about "Times when you felt pleased"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section C - 35/40

* 63. How willing would you be to talk to the following individuals about "Times when you felt resentful"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 64. How willing would you be to talk to the following individuals about "Times when you felt flustered"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 65. How willing would you be to talk to the following individuals about "Times when you felt enraged"?

	Partner	Confidante	Dog
Non dog-owners	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 66. How willing would you be to talk to the following individuals about "Times when you felt relaxed"?

	Partner	Confidante	Dog
Non dog-owner (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owner	<input type="text"/>	<input type="text"/>	<input type="text"/>

* 67. How willing would you be to talk to the following individuals about "Times when you felt detached"?

	Partner	Confidante	Dog
Non dog-owner (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog owner	<input type="text"/>	<input type="text"/>	<input type="text"/>

Section C - 40/40

* 68. How willing would you be to talk to the following individuals about "Times when you felt alarmed"?

	Partner	Confidante	Dog
Non dog-owners (answer NA in dog column)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Dog-owners	<input type="text"/>	<input type="text"/>	<input type="text"/>

End of Survey

69. Thank you very much for participating.

If you would be willing to help us further, we are looking for dog-owners to take part in a short interview to tell us, in your own words, a bit about your relationship with your dog(s). The interviews will be held at the University of Lincoln (UK) at a time that suits you.

If you are willing to take part or would like to know more then please provide your email address below or email Aislinn at: aEvansWilday@lincoln.ac.uk

Appendix 12: Items on the Flanagan Quality of Life Scale (Flanagan, 1978)

Please read each item and circle the number that best describes how satisfied you are at this time. Please answer each item even if you do not currently participate in an activity or have a relationship. You can be satisfied or dissatisfied with not doing the activity or having the relationship.

	Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
1. Material comforts home, food, conveniences, financial security	7	6	5	4	3	2	1
2. Health - being physically fit and vigorous	7	6	5	4	3	2	1
3. Relationships with parents, siblings & other relatives- communicating, visiting, helping	7	6	5	4	3	2	1
4. Having and rearing children	7	6	5	4	3	2	1
5. Close relationships with spouse or significant other	7	6	5	4	3	2	1
6. Close friends	7	6	5	4	3	2	1
7. Helping and encouraging others, volunteering, giving advice	7	6	5	4	3	2	1
8. Participating in organizations and public affairs	7	6	5	4	3	2	1
9. Learning- attending school, improving understanding, getting additional knowledge	7	6	5	4	3	2	1
10. Understanding yourself - knowing your assets and limitations - knowing what life is about	7	6	5	4	3	2	1
11. Work - job or in home	7	6	5	4	3	2	1
12. Expressing yourself creatively	7	6	5	4	3	2	1
13. Socializing - meeting other people, doing things, parties, etc	7	6	5	4	3	2	1
14. Reading, listening to music, or observing entertainment	7	6	5	4	3	2	1
15. Participating in active recreation	7	6	5	4	3	2	1
16. Independence, doing for yourself	7	6	5	4	3	2	1

Appendix 13: Poster used to advertise survey

**WANTED: PEOPLE TO TAKE
PART IN A SURVEY!**

The University of Lincoln is currently looking at how the lives and behaviours of dog owners compare with those of non-owners but to do this we need your help.

We are looking for people, dog owners and non-owners, to take part in an anonymous online survey.

Participants must be over 18 and in a relationship (and must have been with their current partner for at least 6 months).

The survey takes around 20 minutes to complete and only fully completed responses can be used so please answer every question! The survey can be found at:

www.surveymonkey.com/r/aislinn



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Appendix 14: Principal Component Analysis from Chapter 2. Female participants' willingness to confide in partner data. Factor loading of each item was multiplied by survey score for each item to produce 'factor scores'. Four factor structure replaces original eight-subscale structure of SDwDS.

Appendix 14: PCA, Varimax Rotation					
Female Sample from Chapter 2 'Willingness to confide in partner' (n = 232)					
Item	Subscale	Component			
		1	2	3	4
		'Nervous'	'Positive'	'Disconnected'	'Jealous'
Frightened	Fear	.760			
Scared	Fear	.760			
Irritated	Anger	.747			
Uneasy	Anxiety	.720			
Infuriated	Anger	.717			
Sad	Depression	.700			
Afraid	Fear	.747			
Fearful	Fear	.720			
Alarmed	Fear	.717			
Enraged	Anger	.666			
Angry	Anger	.649			
Unhappy	Depression	.646			
Worried	Anxiety	.616			
Troubled	Anxiety	.607			
Anxious	Anxiety	.584			
Discouraged	Depression	.581			
Suspicious	Jealousy	.563			
Pessimistic	Depression	.535			
Depressed	Depression				
Joyous	Happiness		.825		
Delighted	Happiness		.825		
Cheerful	Happiness		.822		
Pleased	Happiness		.803		
Tranquil	Calmness		.773		
Calm	Calmness		.770		
Relaxed	Calmness		.755		
Serene	Calmness		.754		
Happy	Happiness		.737		
Unfeeling	Apathy			.732	
Detached	Apathy			.731	
Numb	Apathy			.728	
Resentful	Jealousy			.668	
Indifferent	Apathy			.652	
Hostile	Anger	.564		.600	
Flustered	Anxiety			.578	
Quiet	Calmness			.574	
Apathetic	Apathy				
Jealous	Jealousy				.607
Envious	Jealousy			.537	.590
Possessive	Jealousy				.583

Appendix 15: Principal Component Analysis from Chapter 2. Female participants' willingness to confide in dog data. Factor loading of each item was multiplied by survey score for each item to produce 'factor scores'. Four factor structure replaces original eight-subscale structure of SDwDS.

Appendix 15: PCA, Varimax Rotation					
Female Sample (from Chapter 2) 'Willingness to confide in dog' (<i>n</i> = 232)					
Item	Subscale	Component			
		1 'Anxious'	2 'Content'	3 'Contentious'	4 'Tense'
Afraid	Fear	.816			
Fearful	Fear	.789			
Frightened	Fear	.786			
Scared	Fear	.775			
Worried	Anxiety	.775			
Anxious	Anxiety	.649			
Uneasy	Anxiety	.628			
Discouraged	Anxiety	.625		.539	
Troubled	Anxiety	.619		.548	
Pessimistic	Depression	.563		.518	
Sad	Depression	.563		.554	
Delighted	Happiness		.908		
Cheerful	Happiness		.861		
Joyous	Happiness		.857		
Happy	Happiness		.824		
Pleased	Happiness		.823		
Relaxed	Calmness		.788		
Tranquil	Calmness		.786		
Calm	Calmness		.781		
Serene	Calmness		.761		
Quiet	Calmness		.568		
Indifferent	Apathy		.353	.719	
Apathetic	Apathy			.705	
Numb	Apathy			.665	
Detached	Apathy			.659	
Jealous	Jealousy			.619	
Possessive	Jealousy			.611	
Depressed	Depression			.610	
Unfeeling	Apathy			.600	.542
Envious	Jealousy			.596	
Unhappy	Depression			.543	
Suspicious	Jealousy			.515	
Enraged	Anger				.836
Hostile	Anger				.811
Infuriated	Anger				.751
Angry	Anger				.698
Irritated	Anger				.676
Alarmed	Fear	.570			.602
Flustered	Anxiety				.583
Resentful	Jealousy			.517	.568

Appendix 16: Results of the linear regression analysis of each subscale for dog-owners. Subscales that scored a *p* value below 0.2 (highlighted) were included in the multivariate model.

Appendix 16: Linear Regression Analysis Willingness of dog-owners to talk to Partner * QoL score Willingness of dog-owners to talk to Confidante * QoL score Willingness of dog-owners to talk to Dog * QoL score <i>n</i> = 173						
Subscale	Partner		Confidante		Dog	
	R ²	<i>p</i>	R ²	<i>p</i>	R ²	<i>p</i>
Depression	.071	.006	.118	.000	.004	.864
Happiness	.048	.020	.063	.012	.031	.840
Jealousy	.065	.010	.024	.246	.033	.128
Anxiety	.050	.035	.056	.020	.029	.169
Anger	.069	.007	.032	.141	.013	.534
Calmness	.008	.495	.014	.885	.013	.794
Apathy	.052	.028	.024	.249	.011	.612
Fear	.048	.039	.038	.086	.014	.499

Appendix 17: Results of the linear regression analysis of each subscale for non-dog-owners. Subscales that scored a *p* value below 0.2 (highlighted) were included in the multivariate model.

Appendix 17: Linear Regression Analysis Willingness of non-dog-owners to talk to Partner * QoL score Willingness of non-dog-owners to talk to Confidante * QoL score <i>n</i> = 40				
Subscale	Partner		Confidante	
	R ²	<i>p</i>	R ²	<i>p</i>
Depression	.074	.420	.177	.068
Happiness	.157	.101	.233	.007
Jealousy	.130	.165	.134	.154
Anxiety	.175	.071	.190	.053
Anger	.063	.500	.106	.251
Calmness	.219	.029	.347	.000
Apathy	.095	.302	.171	.031
Fear	.133	.156	.137	.146

Appendix 18: Results of the linear regression analysis of each of the new factors provided by the PCA. Factors that scored a *p* value below 0.2 (highlighted) were included in the multivariate model.

Appendix 18: Regression Analysis Willingness of non-dog-owners to talk to Partner * QoL score using the PCA structure Willingness of dog-owners to talk to Partner * QoL score using the PCA structure Willingness of dog-owners to talk to Dog * QoL score using the PCA structure <i>p</i> = 0.00625				
	Non-dog-owners (<i>n</i> = 40)		Dog-owners (<i>n</i> = 173)	
PCA factors from 'willingness to confide in partner' data	Willingness to confide in Partner		Willingness to confide in Partner	
	R²	<i>p</i>	R²	<i>p</i>
1 'Nervous'	.099	.282	.073	.005
2 'Positive'	.158	.100	.024	.160
3 'Disconnected'	.111	.230	.028	.178
4 'Jealous'	.130	.166	.055	.023
	N/A		Willingness to confide in Dog	
PCA factors from 'willingness to confide in dog' data			R²	<i>p</i>
1 'Anxious'			.020	.327
2 'Content'			.004	.882
3 'Contentious'			.009	.669
4 'Tense'			.012	.562

Appendix 19: Interview Script and Original Transcripts**Appendix 19a: Interview Script**

Q: Do you ever talk to your dog – not commands or ‘are you hungry?’ but talk to them as if he/she were another human being and could understand the words you were saying?

A: YES

Q: About what kind of topics?

Prompt: About specific things that have happened or about generally feeling happy, sad, angry etc

Prompt: Happy topics? Sad topics? When you’re angry?

Q: **Why do you talk to your dog?

Prompt: Is it because there’s no-one else around? Do you not want to tell other people?

Q: When do you talk to your dog?

Prompt: When you feel sad / lonely etc

Prompt: When there is no-one else around

Q: How often do you talk to your dog?

Prompt: Daily / rarely etc

Q: How do you feel after you’ve talked to your dog?

Prompt: Better/happier/relieved?

Q: Are there any topics/ subject areas that you would rather tell your dog than your closest human confidante?

Prompt: Times when you felt sad/angry etc

Q: Are there any topics/ subject areas that you would not be willing to tell your dog?

Prompt: Times when you felt sad/angry etc

A: No

Q: Why not?

Prompt: Do you think it's silly / not see the point / never occurred to you?

Prompt: Do you think they don't care / understand / can't answer back etc

A: One dog but not the other

Q: Why?

Prompt: Do you feel closer to that dog?

Prompt: Do topics differ between dogs and why?

A: Other dogs (that do not live with me)

Q: Why not your own dog?

Probe: Do topics differ between dogs? Why not own dog?

Appendix 19b: Pre-Interview Information and Consent Form**Consent Form & Basic Information**

Thank you very much for taking part in this short interview.

The purpose of this interview is to hear, in your own words, a little bit about your relationship with your dog(s).

This interview will be recorded in order for it to be transcribed anonymously at a later time. The recording and transcription will not be shared with any third party and all the information you give us will be stored securely. You do not have to answer any question if you would prefer not to and may leave at any time.

If you have any questions or concerns please do not hesitate to ask at any point during the interview.

Please sign below to indicate that you are over the age of 18 and consent to take part.

.....

Gender:

Age:

Gender of Partner:

Length of Relationship:

Number of dogs owned:

Breed of dog(s):

Age of dogs(s):

Gender of dog(s) including whether or not they have been castrated:

Length of ownership:

If you are not sure of answers to these next questions then feel free to answer 'NA'.

How many hours do you spend with your dog during a typical work day?

How many hours do you spend with your dog during a typical day off from work?

In a typical week how many hours are you able to spend with people that you can talk to?

Appendix 19c: Interview #1 - Original Transcript**Interview #1 16/06/2015 11am**

INTERVIEWER: Do you ever talk to your dog – not commands or things like ‘are you hungry?’ or ‘do you want to go for a walk?’ but talk to them as if he or she were another human being and could actually understand the words that you were saying?

INTERVIEWEE: **Urm, I suppose a little bit, maybe do a little bit yeah.**

INTERVIEWER: About what kind of things? What kind of topics?

INTERVIEWEE: **I *laughs* it’s more, I, I, I suppose in that sense then I don’t really talk to her like she’s a human, I more just say “Oh what have you been doing today?” and “has nanny been to see you?”**

INTERVIEWER: So general chit chat?

INTERVIEWEE: **Yeah. Like I talk to her a lot but I don’t really say like, I wouldn’t say “Oh, this happened to me today” or something like that.**

INTERVIEWER: Ok so, why do you talk to your dog? Is it a spur of the moment thing?

INTERVIEWEE: **Yeah, I think its more like comfort for her cause I feel like when I’m talking to her she’s dead happy.**

INTERVIEWER: And when do you talk to your dog? Are there certain times, or when you feel a certain way?

INTERVIEWEE: **I talk to her pretty much all night. Urm, but, like you say, only really sort of commands and like if she’s sat on the sofa and I’m with her like “Are you happy, Charlie?” Urm I would probably, if I was like on my own, and I’d had a really crap day I think then I would maybe say to her, “Oh, mummies had a bad day” and “Oh, she loves coming home to you” and stuff like that. Urm... but yeah apart from that I think, I think I probably just talk to her after work really. And then if we’re out walking I’ll talk to her as well.**

INTERVIEWER: About things that are happening on the walk or about other more specific things?

INTERVIEWEE: **Just as things are happening I think.**

INTERVIEWER: Ok, how often do you talk to your dog?

INTERVIEWEE: **Urm, every day.**

INTERVIEWER: Every day, all the time?

INTERVIEWEE: **Yeah.**

INTERVIEWER: And how do you feel after you’ve talked to her?

INTERVIEWEE: **Happy! Very happy!**

INTERVIEWER: Are there any topics or subject areas that you would rather tell the dog than any human?

INTERVIEWEE: **Urm, I think if I'm *laughs* if I'm, if I'm annoyed with my partner I'd probably be more inclined to tell Charlie than anyone else... cause I feel like, I feel like she's almost a bit of therapy. Sometimes when you're... I've got friends I can talk to but I feel like they might judge me at a later date and then they'd be like "Oh, well I thought you weren't getting on well" or d'know something like that. Whereas, the dog, it's just the dog. So if Ashley, that's my partner, is like winding me up and he's in the garden and I'm in the house with Charlie, I'll be like "Oh Charlie, your dad's horrible" and "let's leave him" do y'know what.. I talk to her in that way. Which I, which I probably wouldn't tell my friends. So yeah.**

INTERVIEWER: Why would you not tell our friends? Is it because you know that Charlie doesn't understand the actual words?

INTERVIEWEE: **Yeah, maybe. I think sometimes even... even just talking it through with, just out loud, maybe that's more what it is. It's not telling Charlie it's just saying it out loud to make you feel a bit better - just getting it off your chest. Even if its to the dog.**

INTERVIEWER: Do you think it's different then if it were just out loud to just an open, empty room or is it because she's a living thing, she's got ears?

INTERVIEWEE: **Oh, yeah definitely. Yeah definitely. I don't ever talk to myself. I don't talk to the radio or anything like that. Just... animals! *laughs***

INTERVIEWER: And is it just your own dog or would it be other dogs, like if for example you were dog sitting for a friend, do you think you'd feel the same way or is it because she's *your* dog?

INTERVIEWEE: **No, I think it's because she's *my* dog.**

INTERVIEWER: Ok, and are there any subjects or topics that you wouldn't tell her about? Or any emotions that you had? So if you didn't want her to know that you were feeling in a certain way?

INTERVIEWEE: **Yeah, I think, maybe if I was, I don't think I, I don't get angry, but, I think if I was ever angry, I obviously wouldn't shout and scream in front of her.**

INTERVIEWER: And why is it?

INTERVIEWEE: **It would upset her, yeah I think she would know, absolutely.**

INTERVIEWER: And would you be worried about her thinking that you were upset with her and she wouldn't know you were just upset in general?

INTERVIEWEE: **Yes. Yeah, definitely.**

INTERVIEWER: That is the end of the questions. Do you have any questions for me or anything you would like to add about your relationship with Charlie?

INTERVIEWEE: **When I was living at home, I didn't have dogs, like when we was growing up.**

INTERVIEWER: So was she your first dog?

INTERVIEWEE: **Well, my mums got two dogs now, which I lived with for about a year. But they weren't really my dogs, they was like my stepdads dogs. But I definitely feel like now I've got Charlie at home, I feel like, I'm a lot happier, I do definitely feel like I'm a lot happier. Urm, which is maybe why I did this interview, because I thought, I do think it's changed my life, having a dog. I think,**

urm... and also I think she, she like, *laughs* this sounds really strange but, she like gives me something to live for if you know what I mean?

INTERVIEWER: Like a reason to get up in the morning?

INTERVIEWEE: Yeah, I haven't got children. And obviously I love my partner, but it, she's like our baby. And it, it's just nice to have her there. Definitely think she makes me happier.

Appendix 19d: Interview #2 – Original Transcript**Interview #2 16/06/2015 2pm**

INTERVIEWER: Do you ever talk to your dog – not commands or things like ‘are you hungry?’ or ‘do you want to go for a walk?’ but talk to them as if he or she were another human being and could actually understand the words that you were saying?

INTERVIEWEE: ***laughs* yeah absolutely. Urm, all the time. Well, I say all the time, not y’know *all* the time but yes, I, I do talk to them about all sorts of things y’know. Urm, from the weather to.... Urm, I just treat them like the person in the room really – which sounds weird.**

INTERVIEWER: Is it the same for both dogs or do you find that its one dog more than the other?

INTERVIEWEE: **Yeah, urm... Monty, who is the rescue dog because he’s got a problem. He’s a dog with a lot of issues, I tend to, strangely enough, treat him more like a... not like a child... it sounds so bad(!) *laughs* that sounds so wrong... but ur, yeah I would, I would interact diff- or talk to him differently than with Ellie who is our “*normal*” *made quotations marks* dog, urm... I probably talk to him more, simply because he is the one that I feel needs more attention, cause he’s, he had huge issues with trusting people.**

INTERVIEWER: Are there any specific topics that you find that you talk to them about?

INTERVIEWEE: **Anything, I, I talk to them when I’m annoyed about something or I talk to them when I’m upset about something because they just sit there and just look at you urm, and this is especially our Ellie, our Bernese, she’s very attached to me, so she follows me around a lot so, I can yeah, I will talk to her... about anything whereas Monty, he spends more time on his own I suppose so when I interact with him I tend to not talk about my own personal problems I just talk to him as if he was like I said, I need, I feel I need to encourage him, does that make sense? I’ve never even thought about it before, but that’s how it is.**

INTERVIEWER: Ok and why do you talk to your dogs?

INTERVIEWEE: **Urm, I’m quite a social person however I’m also a very private person and somethings I wouldn’t even talk to my husband about. You know, things that really bother me...**

INTERVIEWER: Are they things that you would then tell your dog about?

INTERVIEWEE: **Yeah more likely, more likely tell my dog about that than anybody else. I would probably turn to my dog first than anybody else.**

INTERVIEWER: And when do you talk to your dog?

INTERVIEWEE: **It’s probably more when I’m, when nobody else is around. So when I’m in a room on my own. I might have access to other people but they may be in different rooms in the house and because Ellie often follows me anyway I can have that conversation with her, especially when I’m talking about something that bothers me but I do not necessarily want to share it with somebody else.**

INTERVIEWER: Ok, and how often do you talk to your dogs?

INTERVIEWEE: **Everyday. Yeah, I can’t even quantify it. I wouldn’t be able to tell you how many minutes or seconds.**

INTERVIEWER: Ok, and how do you feel after you talk to your dog?

INTERVIEWEE: Urm... that's a good question. Urm I suppose whenever you talk out aloud I find that quite soothing anyway. So, especially if I talk to somebody and felt that they're listening to me, as the dog does urm, I feel quite... well if I'm really upset about something then I feel a lot better afterwards. Urm, quite relieved but sometimes if it's a problem that I need to figure out and that's been going round and round in my head, I, I often feel just talking about it out aloud I often come up with the solution.

INTERVIEWER: So do you think that it wouldn't be the same just saying it out loud to an empty room? Is it because the dogs are listening and they've got ears?

INTERVIEWEE: Yeah, I often talk to them when I'm on a walk for example even though they don't *laughs* necessarily pay attention to me. And I do get sometimes some funny stares from people because I'm talking. But urm, I just feel urm, it just helps me urm, and it makes me feel less lonely I guess when I'm, for example sometimes my husband may work away for a week or so and if I then don't have anybody to talk to I find that very isolating whereas if the dogs are there I can still talk to them as if I had another person in the room.

INTERVIEWER: You mentioned about talking to them when you're out on a walk, are those topics about specific things or is it just, as things are happening?

INTERVIEWEE: Urm, usually it's about specific things that have been going on in my mind, it might be a problem it might have something to do with work that I'm stuck with or, just generally when I feel I just need some advice from somebody else not that the *laughs* dogs will give me that but its again about this talking out aloud to myself that helps my thinking and my, facilitate that process. Urm, but I feel it's weirder when it's just me on my own so the dogs, just the presence, just being there I feel somebody else is listening to me.

INTERVIEWER: You mentioned the word facilitate. Do you feel as though the dogs are facilitating your need to get things off your chest and say it out loud?

INTERVIEWEE: Yeah, yeah absolutely.

INTERVIEWER: And are there any topics or subject areas you would rather tell your dogs than your partner or a close human friend?

INTERVIEWEE: Yeah, I suppose sometimes when its something that really really worries me but I feel, but I know I don't necessarily want to worry somebody else, it could be something to do with health, urm it could be sometimes something to do with my own personal feelings urm, when I know sometimes urm I've got, I have got a tendency sometimes to go urm, my mood is not constant let's put it this way. And er, sometimes I have what I call, I have really bad, dark days and on those days urm, I don't necessarily feel I can talk to my husband about specific things simply because... he may, I feel he may not want to understand or he may not understand, or maybe he won't say the things that I want to hear that I can tell myself or I know I can just, I just want to talk about it but I don't necessarily want a comment back..

INTERVIEWER: So you don't want him to try and fix the problem..?

INTERVIEWEE: No it's "just literally look I have had a very frustrating day today" or "I just feel really low and I don't even know why" and I don't want that wise wisdom back. But my husband doesn't necessarily listen that's the issue urm, or he will just put it aside as something or as "one of your moods". Urm, whereas the dogs don't do that.

INTERVIEWER: So, I've already asked you how do you feel after you've talked to your dogs and you've just mentioned about how the dogs don't comment back do you feel there is any sort of response in some way that you feel you benefit from?

INTERVIEWEE: Yeah, I mean urm... my previous dog was quite finely tuned to me so when I, because he was extremely, he was almost over-attached to me, urm... he would react, he could sense when I was upset and he would come over, he would sit on my lap and things like that – Ellie is a lot bigger *laughs* so, but y'know she will, she will respond by just being there just being able to stroke, y'know have a physical contact and she will come and put her head on my lap if she can sense that I'm upset or at least I like to think that way. Urm and, that in itself is quite soothing, just to know that somebody else is there... with you *laughs*.

INTERVIEWER: And the last question is, are there any topics or subject areas that you would not be willing to tell your dog?

INTERVIEWEE: No, not really I feel I could talk to them about anything.

INTERVIEWER: And how about when you're having one of your darker days or when you're feeling quite angry about something, are you happy to let the dogs know about that?

INTERVIEWEE: Urm, that's a good point. I think, I'm far more careful then, because... urm they can sense, when I'm really stressed and when I'm angry so they tend to probably... I wouldn't say they avoid me but I can, I can see, hmm, how to put that, our rescue dog he will avoid me cause he can feel when I'm stressed and he will not engage with me as much. Whereas Ellie she, she's not urm, that sensitive but I have to be careful not to let out my anger on the dogs... so y'know when they then do something that, and I will just because I'm stressed or annoyed about something and I don't want them to do it, I might then overreact and I find that's not fair on a dog. If that makes sense?

INTERVIEWER: So, when you're angry you don't talk to them as much or engage with them as much?

INTERVIEWEE: Absolutely, yeah, it's just because I feel its not fair on them if, cause if I'm, when I'm really really angry and angry and this hasn't happened in a long time but urm... in the past I know I've been extremely frustrated and angry with something then I have urm, I have taken it out on things but this is a long time ago. But still, I'm worried that y'know just by shouting at the dog and, it's just not fair on them.

INTERVIEWER: So, you feel like they don't understand that it's not their fault and you're just angry in general, not at them?

INTERVIEWEE: Yeah, absolutely. They don't understand why mum is already, y'know why she's so erratic and shouting and screaming and urm so I try not to do that anyway, but I try specifically not to do that in front of the dogs if I can help it.

INTERVIEWER: Ok well that's the end of my questions so if there's anything you'd like to add about your relationship with your two dogs or how would you characterise your relationship with them?

INTERVIEWEE: Urm, I love my dogs. I just can't be without dogs. We had dogs now for almost 30 years and I think the only gap I ever had was about 10 days. Because I just missed them. I missed having the dog and we've always had multiple dogs as well so not just the one and I just... yeah to me, dogs, having dogs is a lifeline to happiness and contentment so... *trails off*

INTERVIEWER: Ok, thank you very much for your time.

Appendix 19e: Interview #3 – Original Transcript**Interview #3****19/06/2015 12pm**

INTERVIEWER: Do you ever talk to your dog – not commands or things like ‘are you hungry?’ or ‘do you want to go for a walk?’ but talk to them as if he or she were another human being and could actually understand the words that you were saying?

INTERVIEWEE: ***laughs* Yes *laughs***

INTERVIEWER: About what kind of topics?

INTERVIEWEE: **Urm... I suppose it would be about things like what we’re going to do, where we’re going to do it or where are we going to go.**

INTERVIEWER: Ok, so things that you and the dog are going to do together, not just things that are about you?

INTERVIEWEE: **No, they might also include things about my husband, urm such as where he is when he will be back. Those sorts of things.**

INTERVIEWER: So would you say that those topics are quite neutral?

INTERVIEWEE: **Yeah, I suppose they’re quite neutral things really.**

INTERVIEWER: And why do you talk to your dog?

INTERVIEWEE: **Urm, probably partly because urm, there’s only two of us in the house, so there are no children, no other family, so urm, the dog becomes a family member. So I would talk to the dog as though I would talk to another- maybe a child – it’s not a child substitute, but it’s a living creature that’s there so its included.**

INTERVIEWER: And when do you talk to your dog? Is it just as things are happening or are there ever times that you would specifically talk to your dog about something even if it were just a passing comment, because there was no-one else there, or would it be a case that you tell the dog instead of telling your partner or a friend?

INTERVIEWEE: **Urm, no, I mean I might talk to the dog, urm for no particular reason if I was on my own so if I was say, on my own all day all weekend and there was nobody else there to talk to I would probably talk to the dog just *laughs* to, almost to hear my own voice to, to sort of communicate otherwise you can spend a day in silence urm, if there’s y’know if there’s nobody else to, not that you’re expecting a response but its, its still a level of communicating, well you feel it’s a level of communication although the dog obviously doesn’t have a clue what you’re talking about.**

INTERVIEWER: Is it not the same then as talking to an empty room? Is it because the dog is a living creature and has got ears?

INTERVIEWEE: **Yes, because it, it, it responds in some way even if it just looks at you or it pricks up its ears or it stands up and looks expectant ‘cause it, it gives some sort of response.**

INTERVIEWER: How often do you talk to your dog?

INTERVIEWEE: **Everyday. It, it would be limited in the morning, when I'm sort of getting ready to go, take her out for a walk I would be sort of saying y'know, where are we going or which way shall we go shall we go down that way, shall we go this way. Urm and then, I don't know, a lot of its quite inconsequential really urm... I'm trying to think- it is sort of generally, general-**

INTERVIEWER: **-sort of observational?**

INTERVIEWEE: **Yeah, yeah.**

INTERVIEWER: **How do you feel after you've talked to your dog?**

INTERVIEWEE: **Urm... if I'm on my own and I've talked to the dog urm I probably feel happier that I've had some, had some interaction urm, in a positive, generally assuming the dog hasn't done something evil *laughs* urm yeah, I would feel happier urm that I'd had some interaction with something that's alive *laugh***

INTERVIEWER: **And are they any topics or subject areas that you would rather tell your dog than a close friend or your partner?**

INTERVIEWEE: **No, no.**

INTERVIEWER: **Are there any topics that you wouldn't be willing to tell your dog?**

INTERVIEWEE: **No, no I tell my dog anything *laughs***

INTERVIEWER: **And how about times when you feel very sad or angry do you mind that the dog might be picking up on your feelings – do you ever against your emotions in front of your dog?**

INTERVIEWEE: **Urm, no, I would, I would urm probably seek some solace with the dog so urm, not necessarily verbal but more urm y'know more stroking the dog, she's, she can be quite urm, my dog can be quite affectionate, she's quite a huggy dog she'll come and rest her head so y'know you sort of hug her, I suppose there would be some talking to her urm yes, I wouldn't hide emotion from her I would probably seek some comfort in a way from her presence there.**

INTERVIEWER: **Ok, that's the end of my questions. Is there anything you'd like to add or any way that you would characterise your relationship?**

INTERVIEWEE: **It's, this one's a relatively new one – I mean I've had dogs all my life, this dog I've only had for 7 months so urm, and I think my answers might have changed at different periods maybe in my life. Urm, but I lead quite, I say I sort of, I have led quite a solitary life urm, in the last 2 or 3 years because I've moved house and then I lived on my own for a period of time while my husband, before he relocated, and that was with a previous dog urm so it was me and the dog so I talked at that time I talked to the dog probably a lot more because, there was nobody else and I urm I have no local family or local friends so when I leave work if I go home to an empty house it was me and the dog so then I would talk to the dog an awful lot but that's not how I am now... *trails off***

INTERVIEWER: **Thank you very much for your time.**

Appendix 19f: Interview #4 – Original Transcript**Interview #4 16/06/2015 12:30pm**

INTERVIEWER: Do you ever talk to your dog – not commands or things like ‘are you hungry?’ or ‘do you want to go for a walk?’ but talk to them as if he or she were another human being and could actually understand the words that you were saying?

INTERVIEWEE: **Yes – I talk to them like human beings and I also do their voices back *laughs***

INTERVIEWER: So, you have three dogs – is it the same for all 3 dogs or is it one more than the other 2 or 2 more than 1?

INTERVIEWEE: **No, I talk to them all the same, *all* the same.**

INTERVIEWER: And about what kind of topics?

INTERVIEWEE: **We talk about all sort of things like where we’re going for a walk, and who’s preference for the walk today *laughs* so we get different preferences, err, we talk about what they’re going to have to eat and we also discuss like games we’re going to play and if I’m going out I tell them where I’m going out and how long I’ll be *laughs* it’s very sad *laughs***

INTERVIEWER: So, about these topics that you talk to them about, would you say that they are neutral topics, happy topics, all kinds of topics...?

INTERVIEWEE: **It’s every type of topic.**

INTERVIEWER: And why do you talk to your dogs?

INTERVIEWEE: **Because they are personalities and have err, I talk to them the same as I would talk to a person.**

INTERVIEWER: Are there ever any times that you will turn to them specifically because its them that you want to talk to or is it because they are there?

INTERVIEWEE: **Urm I just talk to them because they’re almost like little to me people anyway, so I class them as the same as us – the same as people – so I talk to them and also like, voicing their opinions as well.**

INTERVIEWER: And when do you talk to your dogs?

INTERVIEWEE: **I talk to them *all* the time, *all* the time yes.**

INTERVIEWER: Are there ever any times when you’re feeling down or angry so you’ll turn to them specifically?

INTERVIEWEE: **Urm I suppose you do, you reference things that have made you feel in different ways in the day so, when you get home I always talk to them, take them out for a walk and then I talk to them as I walk.**

INTERVIEWER: So when you’re out on your walks is it about things that are happening on the walk or is it just about anything?

INTERVIEWEE: **It can be about anything and everything.**

- INTERVIEWER: And how often do you talk to your dogs?
- INTERVIEWEE: **All the time, whenever I'm with them I talk to them.**
- INTERVIEWER: And how do you feel after you've talked to you dogs?
- INTERVIEWEE: **It makes you feel better, because you're voicing opinions... and giving their opinions back.**
- INTERVIEWER: Are there any topics or subject areas that you would rather tell your dog than another human, so a confidante, close friend, your partner?
- INTERVIEWEE: **I suppose you would, you'd say things that you didn't want to say to somebody else. You would vent it and put it through the animal first... like a practice.**
- INTERVIEWER: And are there any topics that you wouldn't be willing to tell your dogs?
- INTERVIEWEE: **Oh no, your dog's know everything *laughs***
- INTERVIEWER: So with that in mind, what about times when you're feeling angry or sad – do you ever try to guard your feelings from your dogs?
- INTERVIEWEE: **No, I wouldn't guard it from them because they know if you're happy or sad, they can tell from your, how your body is, how your voice is and they know, they know anyway.**
- INTERVIEWER: That's all my questions, do you have anything you'd like to add.
- INTERVIEWEE: **Urm, just that I think it's really nice having dogs and they do give you a lot of health benefits.**
- INTERVIEWER: Ok, what kind of benefits do you think?
- INTERVIEWEE: **I think they... mentally, they keep you more balanced, because you would say things to them that you wouldn't say to people.**
- INTERVIEWER: What kind of things?
- INTERVIEWEE: **If you were really angry with somebody you can say to the dog y'know "oh my god, you should've seen what Jane did today, oh you'd really hate what she did!" and, and you can work it out... so you're not feeling as stressed.**
- INTERVIEWER: Ok, so it's a kind of stress relief?
- INTERVIEWEE: **Yeah, yeah.**
- INTERVIEWER: So what other kind of topics, is it just things that you wouldn't want other people to know?
- INTERVIEWEE: **Just I think its just, talking to them in general as well I tend to go through things I'm going to do... and it's almost discussing it with the dogs and working it through.**
- INTERVIEWER: Would you say that they facilitate your need to talk things through?

INTERVIEWEE: Yes, they do. They do. So, we've recently moved up here from Cornwall and I told them all about we were going to move, where we were going to move to, and it's almost like working it through for me by talking to the dog *laughs* and asking the dogs opinion...

INTERVIEWER: How would you characterise your relationship with your dogs in just a few words?

INTERVIEWEE: Urm, I think we're all equal. I don't see myself as the boss of them. I don't like it when people are too constricted on their dogs and I think we're, we are a pack. We're definitely a pack.

INTERVIEWER: Would you say you were the alpha?

INTERVIEWEE: No, I'm not the alpha, one dog, Maud is the alpha *laughs* she is the bossiest one and she's bossy to all of us... even me.

INTERVIEWER: So you see them as family members?

INTERVIEWEE: Yes they are, they are. They're definitely family.

INTERVIEWER: Well that's all my questions for you, thank you very much.

Appendix 19g: Interview #5 – Original Transcript**Interview #5 25/6/2015 11am**

INTERVIEWER: Do you ever talk to your dog – not commands or things like ‘are you hungry?’ or ‘do you want to go for a walk?’ but talk to them as if he or she were another human being and could actually understand the words that you were saying?

INTERVIEWEE: **Absolutely, yes! She’s my hairy daughter! *laughs***

INTERVIEWER: And about what kind of topics?

INTERVIEWEE: **Anything, it can be anything! I mean if it’s just me and her in the house it can just y’know, I don’t know, “Steve’s annoyed me” or “Have you seen – look at that in the garden” just general, just because she’s there so it’s just general chit chat I suppose.**

INTERVIEWER: And would you say that they are happy topics?

INTERVIEWEE: **Yeah, I would say for the most part, yeah 99.9% of the time, yeah.**

INTERVIEWER: So would you ever talk to her about things that make you sad, things that make you angry?

INTERVIEWEE: **Urm, not really no but she knows when you’re sad. She does know when you’re- if you cry she knows straight away cause she comes up and she licks your face. Same as when my sons upset she knows he’s upset and she goes over to him. So they, she can, they do tell. I think they do anyway.**

INTERVIEWER: Why do you talk to your dog?

INTERVIEWEE: **I don’t know, she’s part of our family, I talk to the cat as well! They’re just part of the family I think just because, I mean everywhere you go she follows, she’s one of them dogs, y’know wherever I go she follows me, so she just there so you just chat, y’know.**

INTERVIEWER: Are there any topics that you would specifically turn to her to tell her because you don’t want to tell other people?

INTERVIEWEE: **Yeah, I wouldn’t say I go to her for anything specific, no.**

INTERVIEWER: Ok, and when do you talk to your dog?

INTERVIEWEE: **Whenever.**

INTERVIEWER: Whenever? It’s not when you’re feeling in a particular way?

INTERVIEWEE: **No, no just whenever. Whenever words come out my mouth. Often! *laughs***

INTERVIEWER: How often do you talk to your dog?

INTERVIEWEE: **Often! *laughs* yeah all the time, y’know like Maisie she, she sleeps on our bed I know she shouldn’t and all the rest of it, so she- I talk to her in the morning and normally we have a chat in the morning as soon as I open my eyes she’s like *hand in front of face* *that...* so er, we’ll have a chat in the morning just about general – like at the moment she’s just had her hair cut so you talk to her about her haircut and stuff like that yeah**

INTERVIEWER: Do you feel like you get a response out of her?

INTERVIEWEE: **Oh, see's very, I think Maisie thinks she's human. I do, that's why we call her the hairy daughter!**

INTERVIEWER: And in what way does she respond?

INTERVIEWEE: **She's very loving, urm, as I say she knows when you're upset she'll urm, come over to you when you're upset. When my mum was ill and she'd had a big operation Maisie's a very jumpy up – didn't do that – she sort of run up towards her, then sniffed her and then just walked by the side of her. And she's just, I think she's just... I think they get your emotions. I do believe that.**

INTERVIEWER: Ok, how do you feel after you've talked to your dog?

INTERVIEWEE: **...Dunno, no different really 'cause I see her as one of the, yeah, part of the family.**

INTERVIEWER: Ok, are there any topics that you would rather tell the dog than any close human friend?

INTERVIEWEE: **No. no.**

INTERVIEWER: And are there any topics that you wouldn't be willing to tell the dog?

INTERVIEWEE: **No *laughs***

INTERVIEWER: So with that in mind, what about times when you're feeling angry in general do you mind if she picks up on it or do you try and guard your feelings?

INTERVIEWEE: **No I don't try and guard her feelings I think she's in the house so if I'd be angry she's there so err, but... yeah... no. Don't think so, no. I can't think of anything.**

INTERVIEWER: Ok well that's the end of my questions, do you have any questions for me, is there anything you'd like to add, anyway that you would characterise your relationship with your dog? If you could sum it up in a few words...

INTERVIEWEE: **Oh god, well she's my hairy daughter! She is, I mean, I moved to Cyprus and had left my family and friends and I'd only been there 2 weeks when I found her so for me she was my massive comfort, being away from family and friends and stuff like that, living out there so she was my baby from the, from day one and because she was so little we had to bottle feed her for a bit and stuff like that so yeah... I suppose like a surrogate child, which is a bit wrong, but it's still about right... but y'know we've had dogs all the way along, and they're always just, they're just part of your family... we don't see it as a dog you just see it as a four legged member of your family y'know so... and Maisie's yeah she's sort of, y'know there was no way on this earth that she was staying there and I was, we were, coming home she was *always* coming – I'd have left him there and brought her home before leaving her there *laughs* but no, I dunno, she's just, for me she's I urm... I miss her y'know like we've just been away for a week and you open the door and she's just there and yeah so... I would miss her if she was gone... she is, she's great *reflective / smiles***

Appendix 19h: Interview #6 – Original Transcript**Interview #6****10/8/2015**

INTERVIEWER: Do you ever talk to your dog – not commands or things like ‘are you hungry?’ or ‘do you want to go for a walk?’ but talk to them as if he or she were another human being and could actually understand the words that you were saying?

INTERVIEWEE: I do **laughs** they’re my babies **laughs**.

INTERVIEWER: About what kind of topics?

INTERVIEWEE: Urm, any topic really, I suppose urm, I, yeah um, yeah I just um, you do you just talk to them I suppose. I’m really close to my dogs, they are my babies. They are my children. Urm, because I don’t have children I suppose. So they are my surrogates.

INTERVIEWER: And do you find that you talk to one dog more than the other?

INTERVIEWEE: The boy dog is my baby, he hates everybody in life really. Urm we got him as a rescue when he was a year old so he had been mistreated so he has issues shall we say with most people particularly men so I mean he’s good with my husband but if I’m about and he’s on my lap NOBODY gets to touch – come near me or touch me because no, he’s not having it. So ur, he is solely mine let alone the little girl who was bought for me as a puppy.

INTERVIEWER: And why do you talk to your dogs?

INTERVIEWEE: I suppose they don’t answer back. It’s a very unconditional love with a dog. Like urm, if they’ve done something wrong, with any dog, and you tell it off the next moment you come round the corner it’s like you’ve been gone for hours isn’t it, its urm... they are so unconditional, they’re non-judgemental, urr, and yeah he’s just my pal I suppose and he follows me and yeah...

INTERVIEWER: When do you talk to your dogs?

INTERVIEWEE: Oh, all the time **laughs** all the time! From the moment we wake up y’know they sleep with us and everything else they’re always there.

INTERVIEWER: Are there ever times when you specifically turn to your dog and seek them out to tell them things that you don’t want to tell other people?

INTERVIEWEE: I suppose so, if you’re really upset. And y’know I’ve got a husband and if he’s upset me I can talk to my dogs and moan at him I suppose, it’s a way of venting your frustration, venting your, not necessarily anger or upset, its because he can’t answer back but you feel like you’ve told somebody I suppose.

INTERVIEWER: How do you feel after you’ve talked to your dog?

INTERVIEWEE: Fine **laughs** yeah, ‘cause he’ll give me a kiss and tell me it’s all alright **laughs**.

INTERVIEWER: Are there any topics that you would rather tell your dog than another person?

INTERVIEWEE: I think things about... y’know my husband is my closest friend and I can tell anything to my husband er, y’know we’ve been together for donkies years I suppose, but if it’s about him then I can talk to my dog **laughs**.

INTERVIEWER: And is there anything that you wouldn't be willing to tell your dog?

INTERVIEWEE: **No *laughs***

INTERVIEWER: What about times when you're feeling particularly upset or angry, do you ever try and guard your feelings against your dog?

INTERVIEWEE: **No, if there ever is anger in the house my little girl will cower away and she doesn't like um, loud y'know angry voices. My boy dog if so, will start protecting me, yeah, he will always come by my side y'know if there's anger or anything, no he will y'know he'll start on the protection.**

INTERVIEWER: So you're quite happy for him to know exactly how you're feeling if you're afraid or angry?

INTERVIEWEE: **Urm, yeah. Yeah, there's never much of that in our house though.**

INTERVIEWER: That's all my scripted questions. Any questions for me? How would you characterise your relationship if you had to sum it up in a few words?

INTERVIEWEE: **Urm, I don't know. I'm very very close to my dogs, they are everything and I know one day I'm gonna be very upset when I lose them. My little boy dog has real personality issues, if you like. Very cute to look at, but really is, does - he's got a hidden side. We've had him for nine years and even though he is better with his anger, he is still, you have to watch him, you can't trust him 100%. I would never put him with children. Urm, for a fact, I would not trust him. I wouldn't necessarily trust her too much because they've not been used to small children around but um, I would never trust him with that. Urm, but he is definitely a one person dog in that respect. But he's loyal to her, the little girl is the boss. Yeah definitely. And he's got diabetes now as well so he hates me with a needle *laughs* but no er, yeah definitely unconditional love yeah, yeah... they get left a lot now unfortunately but they're good.**

INTERVIEWER: And do you feel as though you get any sort of benefits from them?

INTERVIEWEE: **I think, err, there's for's and against's I suppose. James and me have always had dogs y'know James has had them as children y'know, at one time we were selling our house and we moved in with my in-laws and we had 3 Westies at the time and my in-laws had 4 big dogs, so there were 7 dogs in one house for over a year we were like that. So I'm used to having a lot of dogs about and big dogs. At one stage my mother-in-law had Rottweilers, German Shepherd's, Labradors type size dogs and I had the Westies ur so, we're used to that unconditional love... y'know you walk in and there's nothing more welcoming, y'know people say, you'll hear some trainers that when you come in, "ignore the dog, do what you've got to do, they come second" -not with mine. You've got no chance. They're jumping in front of you until you give them attention. He hears my car on the drive and I can hear him inside 'cause he just wants to say hello y'know and it's the same if you've gone out the house for half an hour and when you come back in it's like you've been gone all day. So um, there's something special about that. Yeah, I cant believe that anyone can hurt dogs but that's me, but yeah... *trails off***

INTERVIEWER: Thank you very much, that's all of my questions.

Appendix 19i: Interview #7 – Original Transcript**Interview #7****16/8/2015**

INTERVIEWER: Do you ever talk to your dog – not commands or things like ‘are you hungry?’ or ‘do you want to go for a walk?’ but talk to them as if he or she were another human being and could actually understand the words that you were saying?

INTERVIEWEE: **Yes sometimes I would say so, yes.**

INTERVIEWER: And about what kind of topics?

INTERVIEWEE: **Urm about the football, about yeah sport when we’re watching sport. I’ll say y’know, “what a silly tackle” as if he understood exactly what I was talking about. Urm, about what we’re going to do during the day – about we’re going to agility and we’re going to have breakfast and then we’re going for a walk afterwards and if we’re going to visit people we talk about that. Urm, perhaps if somebody in the family isn’t well I’ll say “oh, uncle paul isn’t very well”. Just general sort of everyday things.**

INTERVIEWER: Ok, and why do you talk to your dog?

INTERVIEWEE: **Well basically, I enjoy communication of any sort, so if it’s a person, or I used to have a guinea pig which I used to talk to as well which will give you a bit of a clue, so I just like to interact and it’s not more that I’m talking to him that I expect him to understand, it just a communication and I have his attention or I try and get his attention, it helps build up our relationship that’s between us rather than... that’s my theory anyway. Whether it works or not I don’t know – it didn’t with the guinea pig.**

INTERVIEWER: Do you ever say things just to get it off your chest and to say it out loud?

INTERVIEWEE: **Not-urm... I suppose sometimes I do but then it but then it’s generally not to the dog in particular. If the dog happens to be in the room I might do, but it’s generally not things I need to get off my chest. I tend to do that when I’m on my own in the car.**

INTERVIEWER: Are there ever any topics that you will specifically talk to the dog about?

INTERVIEWEE: **No, no I don’t do that, no.**

INTERVIEWER: Ok, and when do you talk to your dog?

INTERVIEWEE: **All the time. If I’m happy, or maybe if I’m sad or there’s something sad that’s happened or something that y’know... then maybe I will, I’ll say, oh I dunno... “brother-in-law’s been in hospital” or “he’s not very well and we’re going to see him” and that sort of stuff. But also, if happy about something then I’ll say that as well. I haven’t really thought about it but probably you do but you don’t really notice it.**

INTERVIEWER: How often do you talk to your dog?

INTERVIEWEE: **All the time. All the time I’m with him I talk to him. Even if he’s in the car I’ll say y’know, “we’re just coming to this roundabout now and we’ll be nearly home” as if he knows we’ll be nearly home – obviously he doesn’t.**

INTERVIEWER: How do you feel after you’ve talked to your dog?

INTERVIEWEE: **Urm, I haven't really thought about it. That's a good question. I never feel sad after I've talked to him so that's a... that's a good question. I suppose if you, if you are feeling a bit down anyway then y'know, it does help to, yeah, helps you feel better, yeah that's true.**

INTERVIEWER: Are there any topics that you would rather tell the dog than another person?

INTERVIEWEE: **Urm, no. no, because I don't talk to the dog in that way, I don't – no that's when I'm on my own in the car.**

INTERVIEWER: Are there any topics that you would not be willing to tell your dog?

INTERVIEWEE: ***laughs* no, no. no, because he doesn't understand what I'm saying! I don't tend to. I tend to see of it more as a bond and relationship building exercise rather than an unburdening exercise but, that doesn't mean I wouldn't necessarily ever do that – but not generally no.**

INTERVIEWER: And what about if you were ever feeling upset or angry about something would you ever guard your feelings against him? Would you not want him to know how you were feeling?

INTERVIEWEE: **Oh no, I wouldn't do that. If he was with me and it was a dog-related thing, yes I would try and do that yes, I try and sort of... If I can see he's getting upset or I can see there's issues in the distance or whatever I, y'know, then I would, whatever – just try and chill out and y'know do that. But generally, yes I would, I would try and protect him from doing anything inappropriate I think that's, that's the thing.**

Appendix 19j: Interview #8 – Original Transcript**Interview #8****16/6/2015**

INTERVIEWER: Do you ever talk to your dog – not commands or things like ‘are you hungry?’ or ‘do you want to go for a walk?’ but talk to them as if he or she were another human being and could actually understand the words that you were saying?

INTERVIEWEE: **All the time, yeah all the time.**

INTERVIEWER: About what kind of topics?

INTERVIEWEE: **Just generally talk, y’know like....**

INTERVIEWER: Just general chitchat?

INTERVIEWEE: **Yeah, like I don’t tell them about my daily activities or work or anything like that it’s just as things are happening.**

INTERVIEWER: Why do you talk to your dog?

INTERVIEWEE: **Because it makes me feel happy *laughs*.**

INTERVIEWER: Is it because there’s no-one else around or just because they’re there?

INTERVIEWEE: **No, because even if my partner’s there I probably still talk to the dogs more than... him! *laughs***

INTERVIEWER: And when do you talk to your dog?

INTERVIEWEE: **First thing in the morning, soon as I get home from work...**

INTERVIEWER: How often?

INTERVIEWEE: **Just all the time.**

INTERVIEWER: How do you feel after you’ve talked to your dog?

INTERVIEWEE: **Good.**

INTERVIEWER: Are there any topics that you would rather tell your dog than another person?

INTERVIEWEE: **No, I don’t really talk to them like that.**

INTERVIEWER: Are there any topics you are not willing to tell your dogs?

INTERVIEWEE: **No *laughs*.**

INTERVIEWER: Are there ever any topics like if you’re upset that you would go and specifically get off your chest to the dog?

INTERVIEWEE: **No, I don’t talk to them like that.**

INTERVIEWER: Ok, and why not?

INTERVIEWEE: Urm, 'cause I don't think they could give me any answers really. And I don't think they'll know what I'm on about.

INTERVIEWER: Ok, that's great – thank you very much.

Appendix 20: Demographic information on participants from Chapter 3

Appendix 20: Information on Participants <i>n</i> = 173 heterosexual, female dog-owners <i>n</i> = 40 heterosexual, non-dog-owners				
Demographic Information	Dog-Owners		Non-Dog-Owners	
	Categories	<i>n</i>	Categories	<i>n</i>
Region of Residence	Europe	143	Europe	36
	North America	27	North America	3
	Oceania	1	South America	1
	South America	1		
Age	16 – 25 years	25	16 - 25 years	8
	26 - 35 years	44	26 - 35 years	16
	36 - 45 years	40	36+ years	16
	46 - 55 years	43		
	56+ years	21		
Length of Relationship with Partner	6 months - 5years	38	6 months – 5 years	23
	6 - 10	42	6+ years	17
	11 - 30	32		
	31+ years	61		
Length of Ownership of Dog (Dog-Owners Only)	6 months – 5 years	107		
	6+ years	66		
Dog Gender (Dog-Owners Only)	Male, entire	17		
	Male, neutered	56		
	Female, entire	21		
	Female, neutered	79		